CALAM MONTEREY PENINSULA WATER SUPPLY PROJECT

Draft Environmental Impact Report/ Environmental Impact Statement

Prepared for
California Public Utilities Commission and
Monterey Bay National Marine Sanctuary

January 2017

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Dear Reviewer:

In accordance with provisions of the National Environmental Policy Act of 1969 (NEPA), and the California Environmental Quality Act (CEQA), the National Oceanic and Atmospheric Administration (NOAA) and the California Public Utilities Agency (CPUC) encloses for your review the joint Draft Environmental Impact Report/ Environmental Impact Statement (DEIR/EIS) for the proposed Monterey Peninsula Water Supply Project.

A permit application was submitted by California American Water Company for construction and operation of its proposed Monterey Peninsula Water Supply Project (MPWSP or Project). The purpose of the MPWSP is to replace existing water supplies for CalAm's Monterey District service area. The MPWSP comprises various facilities and improvements, including: a sub-surface seawater intake system; a 9.6-million-gallons-per-day (mgd) seawater reverse osmosis (SWRO) desalination plant; desalinated water storage and conveyance facilities; and expanded Aquifer Storage and Recovery (ASR) facilities.

On August 25, 2015, a Notice of Intent was issued to prepare a draft environmental impact statement (DEIS) for the MPWSP. During the NEPA scoping period, MBNMS held a scoping meeting in Pacific Grove on September 10, 2015 to discuss the proposed project and to solicit public input as to the scope and content of the EIR/EIS. CPUC issued a Notice of Preparation for the previous MPWSP Draft EIR on April 30, 2015, for a 60-day review period and held public meetings.

This environmental document identifies and assesses potential environmental impacts associated with the proposed Project, and identifies six alternatives. Federal and state agencies would use the EIR/EIS to consider related permits or other approvals for the Project as proposed.

The DEIR/EIS will be released on January 13, 2017, and any comments received during the 45-day comment period will be reviewed and considered for their input for the Final EIR/EIS issuance. The comment period will close on February 27, 2017.

The CPUC and MBNMS will host three (3) public meetings to facilitate review of the DEIR/EIS:

1) Wednesday, February 15, 11:00-1:00 pm, Marina Public Library, Community Meeting Room, 188 Seaside Ave., Marina, CA 93933
2) Wednesday, February 15, 6:00-8:00, Oldemeyer Center, Seaside Room, 986 Hilby Ave., Seaside, CA 93955
3) Thursday, February 16, 4:00-8:00 pm, Sunset Center, Carpenter Hall, San Carlos Street, Carmel, CA 93921

Written comments will be accepted until February 27, 2017 and can be submitted online or through the mail to the agency officials identified below.

Mary Jo Borak, CEQA Lead California Public Utilities Commission c/o Environmental Science Associates 550 Kearny Street, Suite 800 San Francisco, CA 94108	Karen Grimmer, NEPA Lead Monterey Bay National Marine Sanctuary 99 Pacific Avenue Building 455a Monterey, CA 93940

Or, Online:
Visit the federal eRulemaking portal at http://www.regulations.gov. In the search window, type NOAA-NOS-2016-0156, click the "Comment Now!" icon.

Sincerely,

John Armor, Director, Office of National Marine Sanctuaries

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The figures in this Draft EIR/EIS have not been made fully compliant with Section 508 of the Rehabilitation Act of 1973. For help with this data or information, please contact Monterey Bay National Marine Sanctuary at (831) 647-4201 and reference the Draft EIR/EIS for the Monterey Peninsula Water Supply Project, dated January 2017.

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LIST OF ACRONYMS

AF	Acre feet
Afy or AFY	Acre-feet per year
ALJ	Administrative Law Judge
AMBAG	Association of Monterey Bay Area Governments
amsl	Above mean sea level
ASBS	Area of Special Biological Significance
ASR	Aquifer storage and recovery
AWTP	Advanced water treatment plant
BIRP	Begonia Iron Removal Plant
BLM	Bureau of Land Management
BMP	Best management practices
CAAQS	California Ambient Air Quality Standards
CAD	Computer Automated Design
Cal OSHA	California Division of Occupational Safety and Health
CalAm	California American Water Company (distribution center)
CalTrans	California Department of Transportation
CAWD	Carmel Area Wastewater District
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCAMP	Central Coast Ambient Monitoring Program
CCC	California Coastal Commission
CCLEAN	Central Coast Long-term Environmental Assessment Network
CCoWS	Central Coast Watershed Studies
CCRWQCB	Central Coast Regional Water Quality Control Board
CCSD	Castroville Community Services District
CDFG	California Department of Fish and Game
CDO	Cease and Desist Order
CDHS	California Department of Health Services
CDPH	California Department of Public Health
CDPR	California Department of Parks and Recreation
CEC	California Energy Commission
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
CGS	California Geological Survey
CHP	California Highway Patrol
CIP	Clean in place (for a membrane system)
CIWR	Center for Integrated Water Research
CNPS	California Native Plant Society
COCs	Contaminants of concern
Corps	United States Army Corps of Engineers (or USACE)
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission

CRDRP	Carmel River Dam and Reservoir Project
CSIP	Castroville Seawater Intrusion Project
CSU	California State University
CTR	California Toxics Rule
CVFP	Carmel Valley Filter Plant
CWA	Clean Water Act
CWP	Coastal Water Project
dB	Decibels
dBA	A-weighted decibels
DBP	disinfection by-products
DEIR	Draft Environmental Impact Report
DRA	Division of Ratepayer Advocates
DTSC	California Department of Toxic Substances Control
DWPS	Desalinated Water Pump Station
DWR	Department of Water Resources
EDR	Environmental Data Resources
EFM	Enhanced flux maintenance
EIR	Environmental Impact Report
ESA	Endangered Species Act
ESF	Elkhorn Slough Foundation
ESNERR	Elkhorn Slough National Estuarine Research Reserve
ETo	Evapotranspiration
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FLEWR	Filter Loading Evaluation for Water Reuse
FOR A	Fort Ord Reuse Authority
ft	Feet
GAC	Granular Activated Carbon
GHG	Greenhouse gases
gpm	Gallons per minute
GRRP	Groundwater Recharge Reuse Project
GWUDI	Groundwater under the direct influence of surface water
HAA	haloacetic acid
HDD	Horizontal directional drilling
HDPE	High-density polyethylene
HP	Horsepower
Hwy 218	Canyon Del Rey Boulevard
ID	Internal diameter
KOP	Key Observation Point
kW	Kilowatt
kWh	Kilowatt-hour
lbs/yr	Pounds per year
LF	Linear feet
LOS	Level of Service
LSI	Langlier Saturation Index
LUP/LCP	Land Use Plan/Local Coastal Program
LUST	Leaking underground storage tank
MBNMS	Monterey Bay National Marine Sanctuary
MBUAPCD	Monterey Bay Unified Air Pollution Control District
MCEHD	Monterey County Health Department, Environmental Health Division
MCWD	Marina Coast Water District

MCWRA	Monterey County Water Resources Agency
MEC	Munitions and explosives of concern
MF	Microfiltration
MG	Million gallons
mg/L	Milligrams per liter
mgd	Million gallons per day
MLCSP	Mortar Lined and Course Steel Pipe
MLLW	Mean lower low water
MLML	Moss Landing Marine Laboratories
MLPP	Moss Landing Power Plant
MPWMD	Monterey Peninsula Water Management District
MRSWMP	Monterey Regional Stormwater Management Program
MRWMD	Monterey Regional Waste Management District
MRWPCA	Monterey Regional Water Pollution Control Agency
MSDS	Material Safety Data Sheet
msl	Mean sea level
MST	Monterey-Salinas Transit
MURP	Modern Urban Runoff Program
MW	Megawatts
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Protection Act
NLP	New Los Padres Dam and Reservoir
NOAA	National Oceanic and Atmospheric Association
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRMCP	National Refractories and Minerals Corporation Plant
NTU	Nephelometric turbidity unit
O_3	Ozone
OTC	Once-through cooling
PBCSD	Pebble Beach Community Services District
PEA	Proponent's Environmental Assessment
PG&E	Pacific Gas and Electric
ppt	Parts per thousand
PPV	Peak Particle Velocity
psi	Pounds per square inch
PSMCSD	Pajaro/Sunny Mesa Community Services District
REPOG	Regional Plenary Oversight Group
RO	Reverse osmosis
ROW	Right-of-way
RTP	Regional Treatment Plant
RUWAP	Regional Urban Water Augmentation Project
RWQCB	Regional Water Quality Control Board
SBD	Ship-based desalination
SCV	Seawater conversion vessel
SEA	Monterey Regional Storm Water & Education Alliance
SEIR	Supplemental environmental impact report
SGB	Seaside Groundwater Basin
SHPO	California State Historic Preservation Office
SRDF	Salinas River Diversion Facility
SVA	Salinas Valley Aquitard

SVGB	Salinas Valley Groundwater Basin
SVIGSM	Salinas Valley Integrated Groundwater Surface Model
SVRP	Salinas Valley Reclamation Plant
SVWP	Salinas Valley Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
SWTP	Surface water treatment plant
TAMC	Transportation Agency of Monterey County
TDS	Total dissolved solids
thd	Total daily head
THM	Trihalomethane
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbons
TPH	Total Petroleum Hydrocarbons
UC	University of California
UCSC	University of California, Santa Cruz
UPRR	Union Pacific Railroad
USACE	United States Army Corps of Engineers (or Corps)
USEPA	United State Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
UV	Ultraviolet light
VGPS	Valley Greens Pumps Station
VOC	Volatile Organic Compounds
WFMCC	Water for Monterey County Coalition
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant
WY	Water Year

ES. EXECUTIVE SUMMARY

ES.1 Introduction

This Environmental Impact Report/Environmental Impact Statement (EIR/EIS) has been prepared by the California Public Utilities Commission (CPUC) pursuant to the California Environmental Quality Act (CEQA) and Monterey Bay National Marine Sanctuary (Sanctuary or MBNMS) pursuant to the National Environmental Policy Act (NEPA). This EIR/EIS analyzes the potential environmental impacts of the Monterey Peninsula Water Supply Project (MPWSP or proposed project) proposed by the California American Water Company (CalAm). CalAm is proposing the MPWSP to develop water supplies for CalAm's Monterey District service area (Monterey District). The MPWSP would include a subsurface seawater intake system; a desalination plant; a brine discharge system; product water conveyance pipelines, one pump station, storage facilities; and improvements to the existing Seaside Groundwater Basin's aquifer storage and recovery (ASR) system (see Chapter 3, Description of the Proposed Project).

This EIR/EIS has been prepared in accordance with CEQA (Cal. Pub. Res. Code §21000 et seq.) and the CEQA Guidelines (Cal. Code Regs., Tit. 20, Div. 6, Ch. 3, §15000 et seq.), and with NEPA (42 U.S.C. §4321 et seq.,) and its implementing regulations (40 CFR Parts 1500-1508). For the purposes of this document, the CEQA lead agency for the MPWSP is the CPUC; the NEPA lead agency is MBNMS. This EIR/EIS presents information to understand the potential environmental consequences of the proposed project, proposed permit issuance by MBNMS, and alternatives.

ES.2 Project Background

CalAm, the project applicant, is a privately owned public utility that has served the Monterey Peninsula since 1966. CalAm's Monterey District encompasses most of the Monterey Peninsula, including the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside, and the unincorporated areas of Carmel Highlands, Carmel Valley, Pebble Beach, and the Del Monte Forest. The water supply challenges facing CalAm and the Monterey Peninsula are substantial and have been well-documented in a number of venues including the SWRCB, the Monterey County Superior Court, the CPUC, and the California Legislature.

In 2004, CalAm filed Application A.04-09-019 seeking a Certificate of Public Convenience and Necessity from the CPUC for the Coastal Water Project. The Coastal Water Project (CWP) was intended to replace existing Carmel River water supplies for the CalAm Monterey District service area that are constrained by legal decisions. In general, CWP involved the production of desalinated water supplies (using existing intakes at the Moss Landing Power Plant), increasing the yield from the Seaside Groundwater Basin ASR system, and building additional storage and conveyance systems to move the replacement supplies to the existing CalAm distribution system. The CWP was sized to meet existing water demand and did not include supplemental supplies to accommodate growth. On January 30, 2009, the CPUC published a Draft EIR analyzing the environmental impacts of the CWP and two project alternatives—the North Marina Project and the Regional Project. The CPUC published the Coastal Water Project Final EIR (SCH No. 2006101004) in October 2009 and certified the Final EIR in December 2009 (Decision D.09-12-017). A year later, in Decision D.10-12-016, the CPUC approved implementation of the Regional Project alternative. The Coastal Water Project Final EIR is available for review at the CPUC, 505 Van Ness Avenue, San Francisco, California.

Subsequent to approval of the Regional Project, CalAm withdrew its support for the Regional Project in January 2012. As a result, in April 2012, CalAm submitted Application A.12-04-019 to the CPUC for the MPWSP. The MPWSP includes many of the same elements previously analyzed in the CWP EIR; however, key components, including the seawater intake system and desalination plant, have been relocated and/or modified under the current proposal.

A Draft EIR on the MPWSP was issued on April 30, 2015. The MPWSP Draft EIR is still available for review at the CPUC, 505 Van Ness Avenue, San Francisco, California. In September 2015, after considering the Draft EIR comments and based on conversations with MBNMS and internal CPUC deliberations, the CPUC Energy Division announced that the Draft EIR would be modified and recirculated as a joint EIR/EIS in coordination with MBNMS.

On May 19, 2015, MBNMS received a permit application from CalAm and responded by June 18, 2015, that the agency would initiate a NEPA review for the project. On August 26, 2015, NOAA's Office of National Marine Sanctuaries initiated the NEPA process by issuing a Notice of Intent (NOI) to prepare an EIS for the project (80 Fed. Reg. 51787). The NOI solicited input on the issues to be analyzed in depth related to the portion of the proposed project within the Sanctuary's boundaries. On September 10, 2015, MBNMS held a NEPA scoping meeting for the

project; the scoping period closed on October 2, 2015. A summary of EIS scoping comments is provided in Appendix A.

This EIR/EIS provides a comprehensive description and evaluation of all proposed components (including the new proposed elements and previously analyzed components) as the "whole of the action."

ES.3 CEQA Project Objectives / NEPA Purpose and Need

ES.3.1 CalAm Project Objectives

The primary, or fundamental, objectives of the proposed MPWSP are to:

1. Develop water supplies for the CalAm Monterey District service area to replace existing Carmel River diversions in excess of CalAm's legal entitlement of 3,376 afy, in accordance with SWRCB Orders 95-10 and 2009-0060;
2. Develop water supplies to enable CalAm to reduce pumping from the Seaside Groundwater Basin from approximately 4,000 to 1,474 afy, consistent with the adjudication of the groundwater basin, with natural yield, and with the improvement of groundwater quality;
3. Provide water supplies to allow CalAm to meet its obligation to pay back the Seaside Groundwater Basin by approximately 700 afy over 25 years as established by the Seaside Groundwater Basin Watermaster;
4. Develop a reliable water supply for the CalAm's Monterey District service area, accounting for the peak month demand of existing customers;
5. Develop a reliable water supply that meets fire flow requirements for public safety;
6. Provide sufficient water supplies to serve existing vacant legal lots of record;
7. Accommodate tourism demand under recovered economic conditions;
8. Minimize energy requirements and greenhouse gas emissions per unit of water delivered; and
9. Minimize project costs and associated water rate increases.

The secondary objectives of the MPWSP are to:

1. Locate key project facilities in areas that are protected against predicted future sea-level rise in a manner that maximizes efficiency for construction and operation and minimizes environmental impacts;
2. Provide sufficient conveyance capacity to accommodate supplemental water supplies that may be developed at some point in the future to meet build out demand in accordance with adopted General Plans; and
3. Improve the ability to convey water to the Monterey Peninsula cities by improving the existing interconnections at satellite water systems and by providing additional pressure to move water over the Segunda Grade.

ES.3.2 MBNMS Purpose and Need

Federal proposed actions consist of the following: 1) authorization of a Coastal Development Permit for CalAm to drill into the submerged lands of MBNMS to install a subsurface seawater intake system; 2) authorization of a Central Coast Regional Water Quality Control Board (RWQCB) issued National Pollutant Discharge Elimination System (NPDES) permit or other discharge authorization to allow for the discharge of brine into MBNMS via an existing ocean outfall pipe, 3) issuance of special use permits to CalAm for the continued presence of a pipeline conveying seawater to a desalination facility and for the use of sanctuary sediments to filter seawater for desalination.

The purpose of these proposed actions are to authorize otherwise prohibited activities to occur within MBNMS, to ensure that the State and Federal permits and the proposed project comply with MBNMS regulations, and to ensure that MBNMS resources are protected by requiring terms and conditions that may be necessary. The need for MBNMS action is to respond to CalAm's request in accordance with NMSA regulations and to protect sanctuary resources.

ES.4 Public & Agency Involvement

ES.4.1 Public and Agency Involvement

This EIR/EIS is a public document for use by the CPUC, MBNMS, other governmental agencies, and the public in identifying and evaluating the potential environmental consequences of the proposed project and proposed federal actions, identifying mitigation measures to lessen or eliminate adverse impacts, and examining feasible alternatives to the proposed project. It is expected that the CPUC, MBNMS, and other responsible, trustee, and relevant agencies will use this EIR/EIS in deciding whether to approve the MPWSP or any alternative. The analyses contained within this EIR/EIS will be used to determine any necessary regulatory permits, authorizations, or approvals.

This EIR/EIS is being circulated to local, state, and federal agencies as well as interested organizations and individuals who wish to review it. Notice of this Draft EIR/EIS was also sent directly to every agency, person, or organization that commented on the CPUC's NOP or the Sanctuary's NOI. The publication of this Draft EIR/EIS marks the beginning of a 45-day public review period.

After the public comment period is over, the comments will be reviewed. A summary of these comments and the corresponding responses from the lead agencies will be included in the Final EIR/EIS. If necessary, changes will be made to the EIR/EIS as a result of the public comments.

ES.5 The Proposed Project

ES.5.1 Description of the Proposed Project

The project area extends approximately 18 miles, from the town of Castroville in the north to the City of Carmel in the south (see **Figure ES-1**). The MPWSP would include a seawater intake system, which would consist of 10 subsurface slant wells[1] (eight active and two on standby) extending offshore into the submerged lands of MBNMS, and a Source Water Pipeline. The slant wells would be constructed at the CEMEX sand mining site in the northern coastal area of the City of Marina and would extract 24.1 million gallons per day (mgd) of source water through the seafloor in MBNMS.

A 9.6 million gallons per day (mgd) capacity desalination plant would be constructed in unincorporated Monterey County on Charles Benson Road, northeast of the City of Marina and would produce approximately 10,750 acre-feet per year (afy). Related facilities would include pretreatment, reverse osmosis (RO), and post-treatment systems; backwash supply and filtered water equalization tanks; chemical feed and storage facilities; brine storage and conveyance facilities; and other associated non-process facilities.

The proposed project would also include improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system facilities, which would enable CalAm to inject desalinated product water into the groundwater basin for subsequent extraction and distribution to customers. The expanded ASR system would include two additional injection/extraction wells, the ASR-5 and ASR-6 Wells, and three parallel pipelines, the ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, and ASR Recirculation Pipeline, and would improve the reliability of the existing ASR system.

Desalinated water conveyance facilities would include a stand-alone Carmel Valley Pump Station, a Terminal Reservoir, and approximately 21 miles of water pipelines that convey source water between the subsurface intakes and the desalination plant, and desalinated water between the desalination plant and the Terminal Reservoir.

CalAm's application for the proposed project also includes an option that would meet all of the project objectives by combining a reduced-capacity desalination plant (6.4 mgd) with a water purchase agreement for 3,500 acre-feet per year (afy) of product water from another source, the Pure Water Monterey Groundwater Replenishment (GWR) Project. The Monterey Regional Water Pollution Control Agency (MRWPCA) certified the Final EIR and approved the GWR Project in October 2015; the GWR Project is described in Section 4.1 of Chapter 4, Environmental Setting (Affected Environment), Impacts, and Mitigation Measures and is one of the projects included in the cumulative scenarios.

[1] The existing test slant well would be converted into a permanent well, and nine additional slant wells would be built.

To inform the final design of the subsurface slant wells and the MPWSP Desalination Plant treatment system, and to collect geologic and hydrogeologic data needed for permitting the full-scale project, CalAm constructed and operates a test slant well at CEMEX. Construction of the test slant well and operation of the pilot program was covered under separate environmental review.[2] The test slant well is permitted to operate until February 2018 and it is not part of the proposed project being evaluated in this EIR/EIS. If the MPWSP with subsurface slant wells at CEMEX is not approved and implemented, the test well will be removed.

ES.5.2 Summary of Potential Impacts and Mitigation Measures for Proposed Project

Chapter 4, Environmental Setting (Affected Environment), Impacts, and Mitigation Measures, of this EIR/EIS evaluates the environmental effects of implementing the proposed project and presents mitigation measures that would reduce potentially significant impacts to less than-significant levels, when feasible. Significant impacts may occur relative to: geology and soils; surface water hydrology and water quality; groundwater resources; terrestrial biological resources; hazards and hazardous materials; land use, land use planning and recreation; traffic and transportation; noise and vibration; utilities; aesthetic resources; cultural and paleontological resources; agricultural resources, and; energy resources. All impacts would be reduced to less-than-significant levels through the implementation of mitigation measures, with the exception of impacts relative to terrestrial biology (inconsistency with City of Marina Local Coastal Land Use Plan), air quality (during construction), greenhouse gas emissions (during operations), noise and vibration (during construction), and indirect impacts from growth. Further, the proposed project may result in significant cumulative impacts when viewed in combination with other past, present, and reasonably foreseeable future projects. The Draft EIR/EIS identifies that with mitigation, the proposed project would not have a considerable contribution to cumulative impacts, with the exception of cumulative impacts relative to terrestrial biological resources (during operation), transportation and traffic (during construction), air quality (during construction), greenhouse gas emissions (during operation), and noise and vibration (during construction).

[2] In October 2014, MBNMS finished its NEPA review of the construction of the test slant well and the operation of the pilot program. In November 2014, the City of Marina and the California Coastal Commission completed their CEQA review.

NOTE:
*The ASR Pipelines are the ASR Conveyance Pipeline, the ASR Pump-to-Waste Pipeline, and the ASR Recirculation Pipeline. See Figure 3-9a for the individual pipeline alignments.

SOURCE: ESA, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure ES-1

Monterey Peninsula Water Supply Project Overview

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ES.6 Alternatives to the Proposed Project

In addition to the proposed project, this EIR/EIS fully evaluates a No Project/No Action alternative, reduced-size alternatives, alternatives with different seawater intake systems, and additional complete desalination project alternatives being proposed by other entities.

ES.6.1 No Project/No Action Alternative

Under the No Project Alternative, the CPUC would not issue a CPCN for the MPWSP or another alternative; MBNMS would not issue authorizations or special use permits for the components of the project within MBNMS, and no facilities would be constructed. CalAm would continue to operate its Monterey District facilities in compliance with the 2009 SWRCB Cease and Desist Order (CDO) as amended by SWRCB Order WR 2016-0016 (together referred to herein as the Revised CDO) and the Seaside Groundwater Basin Adjudication.[3] The implementation of mandatory rationing and conservation measures would be likely. CalAm would purchase and extract 3,500 afy of Pure Water Monterey Groundwater Replenishment (GWR) Project water from the Seaside Groundwater Basin.

ES.6.2 Alternative 1 – Slant Wells at Potrero Road

Under Alternative 1, 10 new subsurface slant wells would be constructed at Potrero Road, rather than at the proposed CEMEX site and two new wells would be drilled at the existing ASR system. The desalination plant and brine discharge/outfall discharge facilities would be the same as the proposed project. Conveyance pipelines would be the same as the proposed project, with an additional 5.5 miles of source water pipeline.

ES.6.3 Alternative 2 – Open-Water Intake at Moss Landing

Under Alternative 2, a new screened open-water intake with a 36” diameter subsurface intake pipeline would be constructed offshore and southwest of Moss Landing in MBNMS. The desalination plant and brine discharge/outfall discharge facilities would be the same as the proposed project and two new wells would be drilled at the existing ASR system. Conveyance pipelines would be the same as the proposed project, with an additional 6.5 miles of source water pipeline.

ES.6.4 Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Under Alternative 3, a new screened open-water intake with two 42” diameter subsurface intake pipelines and a 110’ L x 30’ W x 12’ tall intake structure would be constructed offshore and southwest of Moss Landing in MBNMS. The new outfall would consist of two 36” diameter

[3] The April 2015 MPWSP DEIR included two No Project Alternatives: No Project A was consistent with the CDO at the time; No Action B included an extension of the CDO timeframe. The No Project alternative in this EIR/EIS is consistent with the Revised CDO.

subsurface discharge pipelines and a 140’ L x 10’ W x 15’ tall discharge structure. The 22 mgd desalination plant and co-located data center would be constructed on a 110 acre site off Dolan Road in Moss Landing. Product water would be delivered to CalAm at Dolan Road and Highway 1 and two new wells would be drilled at the existing ASR system. Conveyance pipelines would be the same as the proposed project, with an additional 6.5 miles of source water pipeline, plus two new pipelines totaling 25 additional miles to serve Salinas and Santa Cruz County (31.5 additional miles of pipeline, compared to the proposed project).

ES.6.5 Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Under Alternative 3, a new screened open-water intake with two 96” diameter screened intakes and a 40” diameter pipeline would be constructed offshore Moss Landing in MBNMS. The new outfall at Moss Landing would be an extension of an existing outfall with a 36” diameter pipeline and two 16” diameter diffuser ports. The 12 mgd desalination plant would be constructed at the former National Refractories facility in Moss Landing. Product water would be delivered to CalAm at Dolan Road and Highway 1, with a 6.5 mile pipeline that connects with the proposed project pipelines at Marina and two new wells would be drilled at the existing ASR system.

ES.6.6 Alternative 5a – Reduced Project 6.4 mgd Desalination Plant (Intake Slant Wells at CEMEX)

Under Alternative 5a, fewer slant wells (7) would be constructed at CEMEX compared to the proposed project; the brine discharge/outfall discharge facilities would be the same as the proposed project, and a 6.4 mgd desalination plant would be constructed at the Charles Benson Road site. CalAm would purchase and extract 3,500 afy of GWR water from the Seaside Groundwater Basin.

ES.6.7 Alternative 5b – Reduced Project 6.4-mgd Desalination Plant (Intake Slant Wells at Potrero Road)

Under Alternative 5b, fewer slant wells (7) would be constructed at Potrero Road than Alternative 1; the brine discharge/outfall discharge facilities would be the same as the proposed project, and a 6.4 mgd desalination plant would be constructed at the Charles Benson Road site. The conveyance pipelines would be the same as the proposed project, with an additional 5.5 miles of source water pipeline. CalAm would purchase and extract 3,500 afy of GWR water from the Seaside Groundwater Basin.

ES.7 Comparison of Alternatives and Environmentally Superior Alternative/Preferred Alternative

The analysis of alternatives presented in Chapter 5, Alternatives Screening and Analysis, compared to the analysis of the proposed project in Chapter 4, Environmental Setting (Affected Environment), Impacts, and Mitigation Measures, provides a basis for identifying the environmentally superior alternative under CEQA and the environmentally preferred alternative under NEPA. **Table ES-1** presents the impact conclusion for each impact statement, for every topical area evaluated, for the proposed project and for all alternatives, and provides a relative impact severity for each alternative (increased, decreased or same) compared to the proposed project. Beneficial impacts are highlighted in green.

ES.7.1 Key Impact Differences Between Alternatives

The following discussion summarizes key differences in the significant environmental impacts among the alternatives and the proposed project.

Under the No Project Alternative, it would not be possible to meet the proposed project objectives, and reliance on existing and planned water conservation and recycling programs would continue. The implementation of mandatory rationing and conservation measures would be likely. The lack of water supply would adversely affect the region's economic vitality. The reduction of available water supply by almost 40 percent could lead to water shortages throughout the CalAm Monterey District service area, impacting all economic sectors, including the County's "four pillars" – agriculture, tourism, education, and research, by substantially reducing the reliability of water resources and water infrastructure.

Under the No Project Alternative, current diversions from the Carmel River would continue, consistent with existing conditions in the short-term. However, CalAm would not meet milestones associated with the construction and implementation of the MPWSP. As a result, diversions from the Carmel River would be required to be reduced sooner than under the proposed project and Carmel River flows would be restored by a total of 10,000 acre-feet over the period of October 2018 through 2021. The increases to Carmel River flows under the No Project Alternative would be beneficial to Carmel River steelhead habitat.

Alternative 2 (Open-Water Intake at Moss Landing), Alternative 3 (DeepWater Desal Project), and Alternative 4 (People's Project) would use screened, open water intakes, which would reduce or avoid several potential proposed project impacts on groundwater because of the absence of slant well pumping for source water, but would result in new significant impacts on marine resources. Significant and unavoidable impacts on marine habitat and biological resources would result from the in-water construction of new open water intakes. Operation of screened open-water intakes would result in impingement and entrainment of marine organisms, resulting in significant long-term direct and indirect effects on marine biological resources within MBNMS in Monterey Bay.

For Alternative 3 (DeepWater Desal Project) and Alternative 4 (People's Project), operation of a new, brine-only outfall (no co-mingling with wastewater or other diluent flows) could result in a significant and unavoidable water quality impacts from increased levels of salinity and concentrations of certain other constituents. However, both of these alternatives would produce more desalinated water than the proposed MPWSP, resulting in more water being available that would remove an impediment to and potentially support increase growth in the three county-region. Due to the proximity of live-aboard boats in Moss Landing Harbor, construction activities would result in exposure of more sensitive receptors to substantial pollutant concentrations from construction equipment emissions, resulting in a significant and unavoidable impact.

Alternative 3 (DeepWater Desal Project) may result in significant and unavoidable impacts from energy use from operation of the co-located data center, that would constrain local or regional supplies and require additional capacity. Operation of emergency generators would use large amounts of fuel in a manner that would be unnecessary and wasteful, resulting in a significant and unavoidable impact.

For Alternative 4 (People's Project), Construction of the desalination plant could impact (currently unsurveyed) historical resources, resulting in a significant and unavoidable impact. Operation and siting of the intake pumping facilities on top of the existing caisson at the existing shoreline could result in long-term direct effects on coastal erosion and scour processes that could expose adjacent properties to coastal flooding and a change in sediment transport, resulting in potentially significant impacts. In addition, being within a 100-year flood zone could cause long-term direct effects related to redirection of flood flows, resulting in a significant and unavoidable impact. The intake pumping facilities on top of the existing caisson would result in impacts on the visual quality of the shoreline in Moss Landing and interrupt views of MBNMS resources, resulting in potentially significant impacts.

For (Alternative 1 and 5b), operation of the slant wells at Potrero Road, Alternative 5b would lower groundwater levels in the Dune Sands/Perched-A aquifers in the Moss Landing area; operation of Alternative 1 would additionally lower groundwater levels in the 180- and 400-foot aquifers, thereby capturing groundwater that would have otherwise flowed into Elkhorn Slough. The direct and indirect permanent effects on marine and terrestrial biological resources at Elkhorn Slough from the lowering of groundwater levels would result in significant and unavoidable impacts.

ES.7.2 Environmentally Superior/Environmentally Preferred Alternative

This EIR/EIS identifies Alternative 5a as the environmentally superior/environmentally preferred alternative, assuming implementation of the GWR Project. While the combined Alternative 5a and GWR Project would result in a larger physical footprint than the proposed project alone, the pairing of Alternative 5a and the GWR project would result in reduced operational energy use, reduced GHG emissions, and reduced effects on groundwater levels influenced by fewer slant wells and less volume of pumping, compared to the proposed project. The GWR project would

provide water to growers that would benefit the groundwater basin. In addition, Alternative 5a paired with the GWR project, would be consistent with the 2016 California Action Plan seeking integrated water supply solutions, the Governor's drought proclamations, the CPUC Water Action Plan goal of promoting water infrastructure investment, and the Ocean Plan and MBNMS Desalination Guidelines.

ES.8 Areas of Controversy and Issues to be Resolved

Pursuant to Section 15123(b)(1) of the state CEQA Guidelines and NEPA regulations (40 CFR 1502.12), an EIR/EIS shall identify areas of controversy known to the lead agency including issues raised by agencies and the public and the issues to be resolved (including the choice among alternatives and whether or how to mitigate the significant effects).

The following areas of controversy and issues to be resolved were raised through the scoping and public meetings conducted in association with circulation of the NOP and NOI, as well as comments submitted on the 2015 MPWSP Draft EIR.

- **Demand to be Met by the Proposed Project and Desalination Plant Sizing**

  Comments were received advocating that the desalination plant be sized to provide supply to replace the portions of CalAm's existing Carmel River and Seaside Groundwater Basin supplies that have been constrained by legal decisions (in compliance with SWRCB Orders 95-10 and 2009-0060 and the adjudication of the Seaside Groundwater Basin) to meet current service area demand only. Other comments expressed support for sizing the plant to accommodate differing degrees of additional future demand (e.g., demand associated with the development of vacant legal lots of record, demand associated with full general plan buildout, etc.). Chapter 2, Water Demand, Supplies, and Water Rights, discusses existing service area demand and supplies and the level of demand the MPWSP proposes to meet, and Section 6.3, Growth-Inducing Impacts, evaluates the growth inducement potential of the water supply proposed to be provided by the MPWSP.

- **Groundwater Modeling, Impacts and Water Rights**

  CalAm's proposed use of subsurface slant wells to withdraw source water for the MPWSP Desalination Plant is the subject of two controversies: (1) whether CalAm has the legal right to extract groundwater from the Salinas Valley Groundwater Basin (SVGB); and (2) whether implementation of the MPWSP and operation of the subsurface slant wells would exacerbate seawater intrusion in the SVGB. The proposed subsurface slant wells at CEMEX would extend offshore and be screened in aquifer units of the SVGB that have long been intruded by seawater. Although the subsurface slant wells would draw seawater (i.e., source water for the MPWSP Desalination Plant) from beneath the ocean floor, a fraction of the source water would be drawn from inland portions of the SVGB.

  In 2012, the CPUC asked the SWRCB to provide an opinion regarding whether CalAm has the legal right to extract source water for the MPWSP Desalination Plant from offshore aquifers of the SVGB. The SWRCB has indicated that for CalAm to appropriate

groundwater from the SVGB, the MPWSP EIR/EIS must demonstrate that the proposed project will not harm or cause injury to other basin users (SWRCB, 2013) and made certain recommendations for further study.

The recommendations of the SWRCB have been implemented by a Hydrogeologic Working Group (HWG) comprised of licensed hydrogeologists with pertinent experience in the Monterey Bay region. The HWG was a result of an August 2013 Settlement Agreement between CalAm and 16 parties whereby CalAm agreed their hydrologist and technical team would work with the Salinas Valley Water Coalition's and Monterey County Farm Bureau's assigned hydrogeologists, and other technical experts designated by CalAm. The HWG developed a work plan in order to reach agreement about the studies, well tests, field work, modeling, monitoring, and other data analyses that is needed to assess and characterize whether and to what extent the proposed operation of the MPWSP may adversely affect the SVGB and the water supply available to legal water users thereof. The resulting hydrogeological study informed the analysis presented in Section 4.4, Groundwater Resources, as well as the corresponding analysis in Chapter 5, Alternatives. Refer to Section 2.6 in Chapter 2, Water Demand, Supplies, and Water Rights, for a discussion of water rights.

Furthermore, the groundwater model and results presented in the 2015 Draft EIR have been revised, to address questions about the accuracy and credibility of the groundwater modeling work that was the subject of potential conflict of interest comments. The CPUC made the groundwater data files available for public review, and the CPUC employed the Lawrence Berkeley National Laboratory to conduct an independent evaluation of that data; the results of that evaluation are provided in Appendix E1. The groundwater analysis from the 2015 Draft EIR has been updated by a new groundwater modeling consultant.

- **Private (Versus Public) Ownership of the Desalination Plant**

  A Monterey County ordinance (Health and Safety Code Section 10.72.030 [the Monterey County Desalination Ordinance]) prohibits ownership of a desalination plant by a private entity and at one point in time, Monterey County had filed a lawsuit against CalAm on the issue. In October 2012 and July 2013, the CPUC concluded that the Monterey County Desalination Ordinance is in conflict with California law and that the CPUC's authority preempts the Monterey County Desalination Ordinance to the extent that the ordinance purports to apply to public utility facilities or operations. The CPUC's 2013 decision noted that the Court action initiated by the County had since been dismissed. The Settlement Agreement entered into between CalAm and other parties in August 2013 includes provisions that address project governance and financing that are intended to ensure the consideration of community values and public agency representation in all the important aspects of the MPWSP and to lower project costs, respectively. While the CPUC decisions and provisions of the proposed Settlement Agreement address concerns related to the private ownership of the MPWSP, it is expected that some concerns about this issue may remain.

- **Brine Discharge**

  During scoping and evidentiary hearings, many commenters expressed concerns about the proposed discharge of desalination plant brine to Monterey Bay within MBNMS. Comments primarily focused on the potential effect of brine discharges on benthic habitats and the marine environment, including impacts close to the point of discharge as well as longer term impacts at greater distances associated with the migration of the brine plume. In addition, concerns were expressed over the potential for hypoxia to occur near the seabed as a result of proposed MPWSP operational discharges. Hypoxia, or oxygen depletion, is an environmental phenomenon where the concentration of dissolved oxygen in the water column decreases to a level that can no longer support living aquatic organisms.

  Concerns were raised about the consistency of MPWSP brine discharges with MBNMS and California Ocean Plan standards and requirements, the effects of combining brine with wastewater effluent, and the reduction of effluent that would be available for use as an alternative water source if effluent was used to dilute brine.

  New brine discharge modeling has been performed. The direct, indirect, and cumulative effects of brine discharges on water quality are addressed in Chapter 4, Section 4.3, Surface Water Hydrology and Water Quality; the direct, indirect, and cumulative effects of brine discharges on the marine environment are addressed in Section 4.5, Marine Biological Resources; and the effects of the proposed project on outfall capacity are addressed in Section 4.13, Public Services and Utilities.

- **Alternatives**

  While this EIR/EIS evaluates the MPWSP as proposed by CalAm, other parties are pursuing the development of other desalination projects to provide potable water supply to the Monterey Peninsula and beyond. The Monterey Bay Regional Water Project, proposed by DeepWater Desal, LLC, would provide up to 25,000 afy of potable water supply to serve participating communities in the Monterey Bay region, potentially including the Monterey Peninsula, Castroville, Salinas, and parts of Santa Cruz County. The People's Moss Landing Water Desalination Project (People's Moss Landing Project), proposed by Moss Landing Commercial Business Park, LLC, would provide 13,404 afy (11.97 mgd) of potable water supply to serve North Monterey County and the Monterey Peninsula. Chapter 5, Alternatives, presents information on these other desalination projects based on available information, and includes analysis of these projects as alternatives to the proposed MPWSP project.

- **Greenhouse Gas Emissions (GHG) and De-Gassing**

  Comments were received on the Draft EIR raising concerns about GHG emissions from subsurface intakes and requesting that CO_2 degassing from intake water to the atmosphere be analyzed. These issues are addressed in Section 4.11, Greenhouse Gas Emissions.

- **Coastal Erosion**

  Sea level rise is expected to continue over the next century, in turn accelerating coastal erosion and resulting in the inland retreat of the Monterey Bay coastline. Concerns were raised that coastal erosion could expose subsurface elements of the proposed project such as the slant wells, slant well vaults, and associated infrastructure, potentially damaging them and shortening their lifespan, while the exposed wells and associated structures could also present a hazard to recreational activities. A project-specific coastal retreat study was conducted to evaluate erosion impacts associated with project components in the coastal zone and determined that the slant wells, in their originally-proposed locations, could be undermined and exposed within the project lifetime. Consequently, the slant well clusters were moved farther inland. Section 4.2, Geology, Soils, and Seismicity, describes the issues related to sea level rise and coastal erosion in more detail and evaluates the potential impacts associated with coastal erosion on the proposed slant wells and associated infrastructure.

- **Intake Technologies**

  Several state and federal regulatory and permitting agencies (SWRCB, California Coastal Commission (CCC)) will not consider permitting an open-water intake unless a subsurface intake has been deemed infeasible or would result in greater environmental impacts. NOAA's MBNMS and National Marine Fisheries Service also established guidelines for discretionary approvals for new intake structures stating that subsurface intakes should be used where feasible and beneficial. CalAm has proposed subsurface intakes (slant wells) to supply feedwater to the MPWSP. Chapter 4 of this EIR/EIS evaluates the potential impacts of the proposed project and Chapter 5, Alternatives, presents an extensive analysis of alternative intake technologies and locations.

- **Environmentally Sensitive Habitat, the Coastal Act and City of Marina Local Coastal Land Use Plan**

  In order to implement the MPWSP-proposed subsurface intakes, CalAm will be required to secure a Coastal Development Permit (CDP) under the California Coastal Act. The City of Marina has an approved Local Coastal Plan and would be responsible for issuing this permit. The CalAm Summer 2014 application to the City of Marina for a CDP associated with the exploratory bore holes at CEMEX, and the City's Fall 2014 denial of CalAm's application for a CDP associated with the test well, proved to be very controversial. Even after the CCC approved the test well in November 2014, several lawsuits were filed to stop the drilling and the associated pump test. Section 4.6, Terrestrial Biological Resources, addresses the potential terrestrial biological impacts associated with construction and operation of the proposed slant wells at CEMEX, including analysis of potential inconsistencies with the City of Marina Local Coastal Land Use Plan; and Section 4.4, Groundwater Resources addresses the potential groundwater impacts associated with construction and operation of the slant wells at CEMEX.

- **Monterey Pipeline**

  Comments were received on the April 2015 DEIR and the 2015 Federal Register Notice of Intent, expressing concerns about the Monterey Pipeline. Originally proposed by CalAm to follow a coastal route, the new Monterey Pipeline was evaluated as an alternative route in the April 2015 Draft EIR and in the October 2015 GWR Final EIR. The new 5.4-mile-long, 36-inch-diameter pipeline would allow for bi-directional flows of potable water between the GWR project and the Monterey Peninsula and allow CalAm to maximize the benefits of water produced by the GWR and, through utilization of the ASR, allow CalAm to reduce reliance on Carmel River diversions. Concerns have been expressed about the construction impacts and cost of the pipeline that would include right angle, 45-degree bends and welded junctions. The CPUC approved the new Monterey Pipeline and Pump Station in September 2016, along with the Water Purchase Agreement for the GWR Project. In so doing, the Commission found that benefits associated with the pipeline/pump station project outweighed the significant and unavoidable impact to noise resources that will result from temporary construction activities as set forth above in the Statement of Overriding Considerations. Therefore, as approved projects with utility independent from the proposed project, the Monterey Pipeline and Pump Station are evaluated as cumulative projects in this EIR/EIS since they are no longer a part of the proposed project.

TABLE ES-1
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.2: Geology, Soils, and Seismicity							
Impact 4.2-1: Substantial soil erosion or loss of topsoil during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↓**
Impact 4.2-2: Exposure of people or structures to substantial adverse effects related to fault rupture.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.2-3: Exposure of people or structures to substantial adverse effects related to seismically-induced groundshaking.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.2-4: Exposure of people or structures to substantial adverse effects related to seismically-induced ground failure, including liquefaction, lateral spreading, or settlement.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.2-5: Exposure of people or structures to substantial adverse effects related to landslides or other slope failures.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.2-6: Exposure of people or structures to substantial adverse effects related to expansive soils.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.2-7: Exposure of structures to substantial adverse effects related to corrosive soils.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.2-8: Exposure of people or structures to substantial adverse effects related to land subsidence.	**NI**	**NI ↓**	**NI =**	**NI =**	**NI =**	**NI =**	**NI =**
Impact 4.2-9: Exposure of people or structures to substantial adverse effects related to alternative wastewater disposal systems.	**LS**	**NI ↓**	**LS =**	**LS ↓**	**LS ↓**	**LS ↓**	**LS =**
Impact 4.2-10: Accelerate and/or exacerbate natural rates of coastal erosion, scour, or dune retreat, resulting in damage to adjoining properties or a substantial change in the natural coastal environment.	**LSM**	**NI ↓**	**NI ↓**	**NI ↓**	**NI ↓**	**SU ↑**	**5a: LSM = 5b: NI ↓**
Impact 4.2.11: Degrades the physical structure of any geologic resource or alters any oceanographic process, such as sediment transport, that is measurably different from pre-existing conditions.	**NI**	**NI ↓**	**NI =**	**SU ↑**	**SU ↑**	**SU ↑**	**NI =**
Impact 4.2-C: Cumulative impacts related to Geology, Soils, and Seismicity.	**LSM**	**NI ↓**	**LSM =**	**SU ↑**	**LSM =**	**SU ↑**	**LSM =**

TABLE ES-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.3: Surface Water Hydrology and Water Quality							
Impact 4.3-1: Degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities.	**LS**	**NI ↓**	**LS ↑**	**LS ↑**	**SU ↑**	**SU ↑**	**LS ↓**
Impact 4.3-2: Degradation of water quality from construction-related discharges of dewatering effluent from open excavations and water produced during well drilling and development.	**LSM**	**NI ↓**	**LSM ↑**	**LSM =**	**LSM ↑**	**LSM ↓**	**LSM ↓**
Impact 4.3-3: Degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction.	**LS**	**NI ↓**	**LS ↑**	**LS =**	**LS ↑**	**LS ↓**	**5a: LS = 5b: LS ↑**
Impact 4.3-4: Violate water quality standards or waste discharge requirements or degrade water quality from increased salinity as a result of brine discharge from the operation of the MPWSP Desalination Plant.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↑**	**SU ↑**	**LSM =**
Impact 4.3-5: Violate water quality standards or waste discharge requirements or degrade water quality as a result of brine discharge from the operation of the MPWSP Desalination Plant.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↑**	**SU ↑**	**LSM =**
Impact 4.3-6: Degradation of water quality due to discharges associated with maintenance of the subsurface slant wells and the ASR -5 and ASR-6 Wells.	**LS**	**NI ↓**	**LS =**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↓**
Impact 4.3-7: Alteration of drainage patterns such that there is a resultant increase in erosion, siltation, or the rate or amount of surface runoff.	**LS**	**NI ↓**	**LS ↓**	**LS ↓**	**LS ↑**	**LS ↓**	**LS =**
Impact 4.3-8: Alteration of drainage patterns such that there is an increase in flooding on- or offsite or the capacity of the stormwater drainage system is exceeded.	**LS**	**NI ↓**	**LS ↑**	**LS ↓**	**LS ↑**	**LS ↓**	**LS ↓**
Impact 4.3-9: Impedance or redirection of flood flows due to the siting of project facilities in a 100-year flood hazard area.	**LS**	**NI ↓**	**LS ↓**	**LS =**	**LS ↓**	**SU ↑**	**5a: LS = 5b: LS ↓**
Impact 4.3-10: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to a tsunami.	**LS**	**NI ↓**	**LS ↓**	**LS =**	**LS ↓**	**SU ↑**	**LS =**
Impact 4.3-11: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise.	**LS**	**NI ↓**	**LS ↓**	**LS =**	**LS ↓**	**SU ↑**	**LS =**
Impact 4.3-C: Cumulative impacts related to Surface Water Hydrology and Water Quality.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**SU ↑**	**SU ↑**	**LSM =**

TABLE ES-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.4: Groundwater Resources							
Impact 4.4-1: Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level during construction.	**LS**	**NI** ↓	**NI** ↓	**NI** ↓	**NI** ↓	**NI** ↓	**NI** ↓
Impact 4.4-2: Violate any water quality standards or otherwise degrade groundwater quality during construction.	**LS**	**NI** ↓	**LS** =	**LS** ↑	**LS** ↑	**LS** ↑	**LS** ↓
Impact 4.4-3: Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level during operations so as to expose well screens and pumps.	**LS**	**NI** ↓	**LS** ↓	**LS** ↓	**LS** ↓	**LS** ↓	**5a: LS** ↓ **5b: LS** =
Impact 4.4-4: Violate any water quality standards or otherwise degrade groundwater quality during operations.	**LSM**	**NI** ↓	**LS** ↓	**LS** ↓	**LS** ↓	**LS** ↓	**5a: LSM** = **5b: LS** ↓
Impact 4.4-C: Cumulative impacts related to Groundwater Resources.	**LS**	**NI** ↓	**NI** ↓	**NI** ↓	**NI** ↓	**NI** ↓	**5a: LS** = **5b** ↓
Section 4.5: Marine Resources							
Impact 4.5-1: Result in a substantial adverse effect, either directly or through habitat modifications, including direct disturbance, removal, filling, hydrological interruption, or discharge, on any marine species, natural community, or habitat, including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans (including protected wetlands or waters, critical habitat, essential fish habitat (EFH); or as identified by the CDFW, USFWS, and/or NMFS during construction	**LS**	**NI** ↓	**LS** ↑	**SU** ↑	**SU** ↑	**SU** ↑	**LS** ↓
Impact 4.5-2: Threaten to eliminate a marine plant or animal wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels during construction.	**LS**	**NI** ↓	**LS** ↑	**LS** ↑	**LS** ↑	**LS** ↑	**LS** ↓
Impact 4.5-3: Interfere substantially with the movement of any native marine resident or migratory fish or marine wildlife species or with established native resident or migratory marine wildlife corridors, or impede the use of native marine wildlife nursery sites during construction.	**LS**	**NI** ↓	**LS** ↑	**LS** ↑	**LS** ↑	**LS** ↑	**LS** ↓
Impact 4.5-4: Result in a substantial adverse effect, either directly or through habitat modifications, including direct disturbance, removal, filling, hydrological interruption, or discharge, on any marine species, natural community, or habitat, including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans (including protected wetlands or waters, critical habitat, essential fish habitat (EFH); or as identified by the CDFW, USFWS, and/or NMFS during operations.	**LS**	**NI** ↓	**SU** ↑	**SU** ↑	**SU** ↑	**SU** ↑	**SU** ↑

TABLE ES-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.5: Marine Resources (cont.)							
Impact 4.5-5: Threaten to eliminate a marine plant or animal wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels during operations.	**LS**	**NI ↓**	**LS =**	**LS ↑**	**LS =**	**LS =**	**LS ↓**
Impact 4.5 6: Interfere substantially with the movement of any native marine resident or migratory fish or marine wildlife species or with established native resident or migratory marine wildlife corridors, or impede the use of native marine wildlife nursery sites during operations.	**LS**	**NI ↓**	**LS =**	**LS ↑**	**LS =**	**LS =**	**LS ↓**
Impact 4.5-C: Cumulative impacts on Marine Resources.	**LS**	**NI ↓**	**LS =**	**SU ↑**	**NI ↓**	**SU ↑**	**LS ↓**
Section 4.6: Terrestrial Biological Resources							
Impact 4.6-1: Result in substantial adverse effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification, during construction.	**LSM**	**NI ↓**	**LSM =**	**LSM ↓**	**LSM ↑**	**LSM =**	**LSM =**
Impact 4.6-2: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during construction.	**LSM**	**NI ↓**	**LSM =**	**LSM ↓**	**SU ↑**	**LSM =**	**LSM =**
Impact 4.6-3: Result in substantial adverse effects on federal wetlands, federal other waters, and/or waters of the State during construction.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↑**	**LSM ↑**	**LSM =**
Impact 4.6-4: Be inconsistent with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance with local tree ordinances.	**SU**	**NI ↓**	**SU ↓**	**LSM ↓**	**SU =**	**SU =**	**SU =**
Impact 4.6-5: Introduce or spread an invasive non-native species during construction.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM =**	**LSM =**	**LSM =**
Impact 4.6-6: Result in substantial adverse effects on candidate, sensitive, or special-status species during project operations.	**LSM**	**↓**	**LSM =**	**LSM ↓**	**LSM =**	**LSM =**	**LSM =**
Impact 4.6-7: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during project operations	**LSM**	**↓**	**SU ↑**	**LSM ↓**	**LSM =**	**LSM =**	**5a: LSM = 5b: SU ↑**
Impact 4.6-8: Result in substantial adverse effects on federal wetlands, federal other waters, and waters of the State during project operations.	**LSM**	**NI ↓**	**LSM =**	**NI ↓**	**LSM =**	**LSM =**	**LSM =**
Impact 4.6-9: Introduce or spread an invasive non-native species during project operations.	**LSM**	**NI ↓**	**NI ↓**	**NI ↓**	**NI ↓**	**NI ↓**	**5a: LSM = 5b: NI ↓**

TABLE ES-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.6: Terrestrial Biological Resources (cont.)							
Impact 4.6-10: Conflict with the provisions of an adopted Habitat Conservation Plans, natural community conservation plans or other approved local, regional, or state habitat conservation plan.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM =**	**LSM =**	**LSM =**
Impact 4.6-C: Cumulative impacts related to Terrestrial Biological Resources.	**SU**	**NI ↓**	**SU =**	**LSM ↓**	**LSM ↓**	**SU =**	**SU =**
Section 4.7: Hazards and Hazardous Materials							
Impact 4.7-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during construction.	**LS**	**NI ↓**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↓**
Impact 4.7-2: Encountering hazardous materials from other hazardous materials release sites during construction.	**LSM**	**NI ↓**	**LSM =**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM =**
Impact 4.7-3: Project facilities would be located on a known hazardous materials site.	**LS**	**NI ↓**	**LS =**	**LS ↑**	**LS ↑**	**LS ↑**	**LS =**
Impact 4.7-4: Handle hazardous materials or emit hazardous emissions within 0.25 mile of schools during construction.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.7-5: Increase risk of wildland fires during construction.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.7-6: Create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials during project operations.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS ↑**	**LS ↑**	**LS ↓**
Impact 4.2-C: Cumulative impacts related to Hazards and Hazardous Materials.	**LSM**	**NI ↓**	**LSM =**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM =**
Section 4.8: Land Use, Land Use Planning, and Recreation							
Impact 4.8-1: Consistency with applicable plans, policies, and regulations related to land use and recreation that were adopted for the purpose of mitigating an environmental effect.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.8-2: Disrupt or preclude public access to or along the coast during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.8-C: Cumulative impacts related to Land Use, Land Use Planning, and Recreation.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM =**	**LSM =**	**LSM =**

TABLE ES-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.9: Traffic and Transportation							
Impact 4.9-1: Temporary traffic increases on regional and local roadways due to construction-related vehicle trips.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.9-2: Temporary reduction in roadway capacities and increased traffic delays during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.9-3: Increased traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.9-4: Impaired emergency access during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.9-5: Temporary disruptions to public transportation, bicycle, and pedestrian facilities during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.9-6: Increased wear-and-tear on the designated haul routes used by construction vehicles.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.9-7: Parking interference during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM =**	**LSM =**	**LSM =**	**5a: LSM = 5b: LSM ↑**
Impact 4.9-8: Long-term traffic increases on regional and local roadways during project operations and maintenance.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.9-C: Cumulative impacts related to Traffic and Transportation.	**SU**	**NI ↓**	**SU =**	**SU =**	**SU =**	**SU =**	**SU =**

TABLE ES-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.10: Air Quality							
Impact 4.10-1: Generate emissions of criteria air pollutants and contribute to a violation of an ambient air quality standard during construction.	**SU**	**NI ↓**	**SU ↑**	**SU ↑**	**SU ↑**	**SU =**	**SU =**
Impact 4.10-2: Construction activities could conflict with implementation of the applicable air quality plan.	**SU**	**NI ↓**	**SU ↑**	**SU ↑**	**SU ↑**	**SU =**	**SU =**
Impact 4.10-3: Expose sensitive receptors to substantial pollutant concentrations and/or *Coccidioides immitis* (Valley Fever) spores or create objectionable odors affecting a substantial number of people during construction.	**LS**	**NI ↓**	**LS ↑**	**LS ↑**	**SU ↑**	**SU ↑**	**LS =**
Impact 4.10-4: Long-term increase of criteria pollutant emissions that could contribute to a violation of an ambient air quality standard during operations.	**LS**	**NI ↓**	**LS =**	**LS ↑**	**LSM ↑**	**LS ↑**	**LS ↓**
Impact 4.10-5: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations.	**LS**	**NI ↓**	**LS =**	**LS ↑**	**LSM ↑**	**LS ↑**	**LS ↓**
Impact 4.10-C: Cumulative impacts related to Air Quality.	**SU**	**NI ↓**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↑**	**SU =**
Section 4.11: Greenhouse Gas Emissions							
Impact 4.11-1: Incremental contribution to climate change from GHG emissions associated with the proposed action.	**SU**	**NI ↓**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↓**
Impact 4.11-2: Conflict with the Executive Order B-30-15 Emissions Reduction Goal.	**SU**	**NI ↓**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↓**
Impact 4.11-3: Conflict with AB 32 Climate Change Scoping Plan.	**SU**	**NI ↓**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↓**
Impact 4.11-C: Cumulative impacts related to Greenhouse Gas Emissions.	**SU**	**NI ↓**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↓**
Section 4.12: Noise and Vibration							
Impact 4.12-1: Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity during construction.	**SU**	**NI ↓**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↑**	**5a: SU = 5b: SU ↑**

TABLE ES-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.12: Noise and Vibration (cont.)							
Impact 4.12-2: Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.12-3: Exposure of people to or generation of excessive groundborne vibration during construction.	**LSM**	**NI ↓**	**LSM ↓**	**LSM ↓**	**LSM ↓**	**LSM ↓**	**5a: LSM = 5b: LSM ↓**
Impact 4.12-4: Consistency with the construction time limits established by the local jurisdictions.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↑**	**LSM =**	**5a: LSM = 5b: LSM ↓**
Impact 4.12-5: Substantial permanent increases in ambient noise levels in the project vicinity above levels existing without the project during operations.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↑**	**LSM ↑**	**LSM =**
Impact 4.12-6: Expose people to or generate operational noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during operation.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LSM ↑**	**LS =**
Impact 4.12-C: Cumulative impacts related to Noise and Vibration.	**SU**	**NI ↓**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↑**	**5a: SU = 5b: SU ↑**
Section 4.13: Public Services and Utilities							
Impact 4.13-1: Disrupt or relocate regional or local utilities during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.13-2: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.13-3 Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during operations.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS ↑**	**LS ↓**	**LS =**

TABLE ES-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.13: Public Services and Utilities (cont.)							
Impact 4.13-4: Exceed wastewater treatment requirements of the Central Coast RWQCB, or result in a determination by the wastewater treatment provider that it has inadequate treatment or outfall capacity to serve the project.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LS ↓**	**LS ↓**	**LSM =**
Impact 4.13-5: Increased corrosion of the MRWPCA outfall and diffuser as a result of brine discharge associated with project operations.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**NI ↓**	**NI ↓**	**LSM =**
Impact 4.13-C: Cumulative impacts related to Public Services and Utilities.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↓**	**LSM ↓**	**LSM =**
Section 4.14: Aesthetic Resources							
Impact 4.14-1: Construction-related impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LSM ↑**	**LS =**
Impact 4.14-2: Temporary sources of substantial light or glare during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM =**
Impact 4.14-3: Permanent impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.	**LSM**	**NI ↓**	**LSM =**	**LSM ↓**	**LSM ↓**	**LSM =**	**LSM =**
Impact 4.14-4: Permanent new sources of light or glare.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↑**	**LSM ↑**	**LSM =**
Impact 4.14-C: Cumulative impacts related to Aesthetic Resources	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM =**	**LSM =**	**LSM =**
Section 4.15: Cultural and Paleontological Resources							
Impact 4.15-1: Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5 during construction.	**NI**	**NI =**	**NI =**	**NI =**	**NI =**	**SU ↑**	**NI =**
Impact 4.15-2: Cause a substantial adverse change during construction in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.15-3: Directly or indirectly destroy a unique paleontological resource or site, or unique geological feature during construction.	**LS**	**NI ↓**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↑**	**5a: LS = 5b: LS ↑**

TABLE ES-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.15: Cultural and Paleontological Resources (cont.)							
Impact 4.15-4: Disturbance any human remains, including those interred outside of formal cemeteries, during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.15-C: Cumulative impacts related to Cultural and Paleontological Resources.	**LS**	**NI ↓**	**LS =**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM =**
Section 4.16: Agricultural Resources							
Impact 4.16-1: Result in changes in the existing environment that, due to their location or nature, could temporarily disrupt agricultural activities or result in the permanent conversion of farmland to non-agricultural use.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↑**	**NI ↓**	**LSM =**
Impact 4.16-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS ↑**	**NI ↓**	**LS =**
Impact 4.16-3: Conflict with zoning for agricultural uses or with Williamson Act contracts.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS ↑**	**NI ↓**	**LS =**
Impact 4.16-C: Cumulative impacts related to Agricultural Resources.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↑**	**NI ↓**	**LSM =**
Section 4.17: Mineral Resources							
Impact 4.17-1: Loss of availability of known mineral resources that are of value to the region or residents of the state or result in the loss of a locally-recognized important mineral resource recovery site.	**LS**	**NI ↓**	**LS ↓**	**LS ↓**	**LS ↓**	**LS ↓**	**5a: LS = 5b: LS ↓**
Impact 4.17-C: Cumulative impacts related to Mineral Resources.	**LS**	**NI ↓**	**LS ↓**	**LS ↓**	**LS ↓**	**LS ↓**	**5a: LS = 5b: LS ↓**

TABLE ES-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.18: Energy Conservation							
Impact 4.18-1: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM ↓ 5b: LSM ↑**
Impact 4.18-2: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during operations.	**LS**	**NI ↓**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↓**
Impact 4.18-3: Constrain local or regional energy supplies, require additional capacity, or affect peak and base periods of electrical demand during operations.	**LS**	**NI ↓**	**LS ↑**	**LS ↑**	**SU ↑**	**LS ↑**	**LS ↓**
Impact 4.18-C: Cumulative impacts related to Energy Resources.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**SU ↑**	**LSM ↑**	**5a: LSM ↓ 5b: LSM ↓**
Section 4.19: Population and Housing							
Impact 4.19-1: Induce substantial population growth directly during project construction.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.19-2: Induce substantial population growth directly during project operations.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.19-C: Cumulative impacts related to Population and Housing.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Section 4.20 Socioeconomics and Environmental Justice							
Impact 4.20-1: Reductions in the rate of employment, total income, or business activity in Monterey County.	**LSM**	**SU ↑**	**LSM =**	**LSM =**	**LSM =**	**LSM =**	**LSM =**
Impact 4.20-2: Disproportionately high and adverse effects on low-income or minority populations.	**LS**	**SU ↑**	**LS =**	**LS ↓**	**SU ↑**	**SU ↑**	**LS ↓**
Impact 4.20-C: Cumulative impacts related to Socioeconomics and/or Environmental Justice.	**LSM**	**SU ↑**	**LSM =**	**LSM =**	**SU ↑**	**SU ↑**	**LSM ↓**

TABLE ES-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Growth Inducement							
Impact 6.3-1: Secondary effects of planned growth.	**SU**	**NI** ↓	**LS** ↓	**SU** ↑	**SU** ↑	**SU** ↑	**LS** ↓
Impact 6.3-C: Cumulative impacts related to growth inducement.	**SU**	**NI** ↓	**SU** ↑	**SU** ↑	**SU** ↑	**SU** ↑	**SU** =

NOTES:

↑ Increased severity of impact ↓ Decreased severity of impact **=** Same severity of impact

NI – No Impact
LS = Less than Significant impact, no mitigation proposed
LSM = Less than Significant impact with Mitigation
SU = Significant and Unavoidable impact, even with implementation of mitigation
= Beneficial Impact

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TABLE ES-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.2: Geology, Soils, and Seismicity																
Impact 4.2-1: Substantial soil erosion or loss of topsoil during construction.	LS	LS	LSM	LS	LS	LSM	LSM	LS	LSM	LSM	LS	LS	LS	LSM		**LSM**
Mitigation Measures																
4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts on Sensitive Communities.	-	-	X	-	-	X	X	-	X	X	-	-	-	X		
4.16-1: Minimize Disturbance to Farmland	-	-	X	-	-	X	X	-	-	-	-	-	-	-		
Impact 4.2-2: Exposure of people or structures to substantial adverse effects related to fault rupture.	NI	NI	NI	NI	NI	NI	NI	LS	NI	NI	NI	LS	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.2-3: Exposure of people or structures to substantial adverse effects related to seismically-induced groundshaking.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.2-4: Exposure of people or structures to substantial adverse effects related to seismically-induced ground failure, including liquefaction, lateral spreading, or settlement.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.2-5: Exposure of people or structures to substantial adverse effects related to landslides or other slope failures.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	LS	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.2-6: Exposure of people or structures to substantial adverse effects related to expansive soils.	NI	NI	NI	NI	NI	NI	LS	NI	NI	NI	NI	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.2-7: Exposure of structures to substantial adverse effects related to corrosive soils.	NI	LS	NI	NI	NI	NI	NI	NI	LS	LS	LS	LS	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-			
Impact 4.2-8: Exposure of people or structures to substantial adverse effects related to land subsidence.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**NI**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.2-9: Exposure of people or structures to substantial adverse effects related to alternative wastewater disposal systems.	LS	NI	NI	NI	NI	NI	NI	NI	NI	LS	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.2: Geology, Soils, and Seismicity (cont.)																
Impact 4.2-10: Accelerate and/or exacerbate natural rates of coastal erosion, scour, or dune retreat, resulting in damage to adjoining properties or a substantial change in the natural coastal environment.	LSM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**LSM**
Mitigation Measures																
4.2-9: Slant Well Abandonment Plan.	X	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.2.11: Degrades the physical structure of any geologic resource or alters any oceanographic process, such as sediment transport, that is measurably different from pre-existing conditions.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**NI**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.2-C: Cumulative impacts related to Geology, Soils, and Seismicity.	**LSM for cumulative impacts associated with soil erosion or loss of topsoil during construction, and for cumulative impacts associated with coastal erosion and bluff retreat.**															
Section 4.3: Surface Water Hydrology and Water Quality																
Impact 4.3-1: Degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.3-2: Degradation of water quality from construction-related discharges of dewatering effluent from open excavations and water produced during well drilling and development.	LS	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LS	LSM	LSM	LSM	LSM		**LSM**
Mitigation Measures																
4.7-2b: Soil and Groundwater Management Plan.	-	X	X	X	X	X	X	X	X	-	X	X	X	X		
Impact 4.3-3: Degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction.	NI	NI	LS	LS	LS	LS	LS	LS	NI	NI	LS	LS	LS	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.3-4: Violate water quality standards or waste discharge requirements or degrade water quality from increased salinity as a result of brine discharge from the operation of the MPWSP Desalination Plant.	NI	LSM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**LSM**
Mitigation Measures																
4.3-4: Operational Discharge Monitoring, Analysis, Reporting, and Compliance	-	X	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.3-5: Violate water quality standards or waste discharge requirements or degrade water quality as a result of brine discharge from the operation of the MPWSP Desalination Plant.	NI	LSM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**LSM**
Mitigation Measures																
4.3-5: Implement Protocols to Avoid Exceeding Water Quality Objectives	-	X	-	-	-	-	-	-	-	-	-	-	-	-		

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.3: Surface Water Hydrology and Water Quality (cont.)																
Impact 4.3-6: Degradation of water quality due to discharges associated with maintenance of the subsurface slant wells and the ASR -5 and ASR-6 Wells.	LS	NI	NI	NI	NI	NI	NI	NI	NI	LS	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.3-7: Alteration of drainage patterns such that there is a resultant increase in erosion, siltation, or the rate or amount of surface runoff.	LS	LS	NI	NI	NI	NI	NI	NI	LS	LS	NI	NI	NI	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.3-8: Alteration of drainage patterns such that there is an increase in flooding on- or offsite or the capacity of the stormwater drainage system is exceeded.	LS	LS	NI	NI	NI	NI	NI	NI	LS	LS	NI	NI	NI	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.3-9: Impedance or redirection of flood flows due to the siting of project facilities in a 100-year flood hazard area.	LS	NI	LS	NI	NI	NI	LS	LS	NI	NI	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.3-10: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to a tsunami.	LS	NI	NI	NI	NI	NI	LS	NI	NI	NI	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.3-11: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise.	LS	LS	LS	NI	NI	NI	LS	NI	NI	NI	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.3-C: Cumulative impacts related to Surface Water Hydrology and Water Quality.	**LSM for cumulative impacts associated with surface water quality during construction, and ocean water quality during operation.**															
Section 4.4: Groundwater Resources																
Impact 4.4-1: Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level during construction.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.4-2: Violate any water quality standards or otherwise degrade groundwater quality during construction.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.4: Groundwater Resources (cont.)																
Impact 4.4-3: Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level during operations so as to expose well screens and pumps.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Applicant Proposed Mitigation Measures																
4.4-3: Groundwater Monitoring and Avoidance of Well Damage.	X	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.4-4: Violate any water quality standards or otherwise degrade groundwater quality during operations.	LSM	NI	NI	NI	NI	NI	NI	NI	NI	LS	NI	NI	NI	NI		**LSM**
Mitigation Measures																
4.4-4: Groundwater Monitoring and Avoidance of Impacts on Groundwater Remediation Plumes.	X	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.4-C: Cumulative impacts related to Groundwater Resources.	**LS**															
Section 4.5: Marine Resources																
Impact 4.5-1: Result in a substantial adverse effect, either directly or through habitat modifications, including direct disturbance, removal, filling, hydrological interruption, or discharge, on any marine species, natural community, or habitat, including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans (including protected wetlands or waters, critical habitat, essential fish habitat (EFH); or as identified by the CDFW, USFWS, and/or NMFS during construction	LS	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.5-2: Threaten to eliminate a marine plant or animal wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels during construction.	LS	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.5-3: Interfere substantially with the movement of any native marine resident or migratory fish or marine wildlife species or with established native resident or migratory marine wildlife corridors, or impede the use of native marine wildlife nursery sites during construction.	LS	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.5-4: Result in a substantial adverse effect, either directly or through habitat modifications, including direct disturbance, removal, filling, hydrological interruption, or discharge, on any marine species, natural community, or habitat, including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans (including protected wetlands or waters, critical habitat, essential fish habitat (EFH); or as identified by the CDFW, USFWS, and/or NMFS during operations.	LS	LS	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.5-5: Threaten to eliminate a marine plant or animal wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels during operations.	LS	LS	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.5: Marine Resources (cont.)																
Impact 4.5 6: Interfere substantially with the movement of any native marine resident or migratory fish or marine wildlife species or with established native resident or migratory marine wildlife corridors, or impede the use of native marine wildlife nursery sites during operations.	LS	LS	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Impact 4.5-C: Cumulative impacts on Marine Resources.	**LS**															
Section 4.6: Terrestrial Biological Resources																
Impact 4.6-1: Result in substantial adverse effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification, during construction.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	**LSM**
Mitigation Measures																
4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4.6-1b: Construction Worker Environmental Awareness Training and Education Program.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4.6-1c: General Avoidance and Minimization Measures.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4.6-1d: Protective Measures for Western Snowy Plover.	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1e: Avoidance and Minimization Measures for Special-status Plants.	X	X	X	-	-	X	X	X	X	X	X	X	X	-	X	
4.6-1f: Avoidance and Minimization Measures for Smith's Blue Butterfly.	X	-	X	-	-	X	-	X	-	-	-	-	-	-	X	
4.6-1g: Avoidance and Minimization Measures for Black Legless Lizard, Silvery Legless Lizard, and Coast Horned Lizard.	X	-	X	-	-	X	X	X	X	X	X	-	-	-	X	
4.6-1h: Avoidance and Minimization Measures for Western Burrowing Owl.	-	-	X	-	-	X	-	X	X	-	-	-	-	-	X	
4.6-1i: Avoidance and Minimization Measures for Nesting Birds.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4.6-1j: Avoidance and Minimization Measures for American Badger.	-	X	X	-	-	X	X	X	X	X	X	X	X	-	X	
4.6-1k: Avoidance and Minimization Measures for Monterey Dusky-Footed Woodrat.	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	
4.6-1l: Avoidance and Minimization Measures for Special-status Bats.	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4.6-1m: Avoidance and Minimization Measures for Native Stands of Monterey Pine.	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	
4.6-1n: Habitat Mitigation and Monitoring Plan.	X	X	X	-	-	X	X	X	X	X	X	X	X	X	X	
4.6-1o: Avoidance and Minimization Measures for California Red-legged Frog and California Tiger Salamander.	-	X	X	X	X	X	X	-	X	-	-	X	X	X	X	
4.6-1p: Control Measures for Spread of Invasive Plants	X	X	X	-	-	X	X	X	X	X	X	-	-	-	X	
4.6-1q: Frac-out Contingency Plan	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	
4.12-1b: General Noise Controls for Construction Equipment.	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
4.14-2: Site-Specific Construction Lighting Measures.	X	X	X	X	X	X	X	X	-	X	X	-	-	-	-	

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.6: Terrestrial Biological Resources (cont.)																
Impact 4.6-2: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during construction.	LSM	LSM	LSM	LS	LS	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	**LSM**
Mitigation Measures																
4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.	X	X	X	-	-	X	X	X	X	X	X	X	X	X	X	
4.6-1b: Construction Worker Environmental Awareness Training and Education Program.	X	X	X	-	-	X	X	X	X	X	X	X	X	X	X	
4.6-1c: General Avoidance and Minimization Measures.	X	X	X	-	-	X	X	X	X	X	X	X	X	X	X	
4.6-1d: Protective Measures for Western Snowy Plover.	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1e: Avoidance and Minimization Measures for Special-status Plants.	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	
4.6-1n: Habitat Mitigation and Monitoring Plan.	X	X	X	-	-	X	X	X	X	X	X	X	X	X	X	
4.6-1o: Avoidance and Minimization Measures for California Red-legged Frog and California Tiger Salamander.	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	
4.6-1p: Control Measures for Spread of Invasive Plants	X	X	X	-	-	X	X	X	X	X	X	-	-	-	-	
4.6-1q: Frac-out Contingency Plan	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	
4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas.	X	--	X	-	-	X	X	X	-	-	-	-	-	-	X	
4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities.	X	X	X	-	-	X	X	X	X	X	X	X	X	X	X	
Impact 4.6-3: Result in substantial adverse effects on federal wetlands, federal other waters, and/or waters of the State during construction.	LSM	LS	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LS	LS	LSM	LSM	LSM	LS	**LSM**
Mitigation Measures																
4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.	X	-	X	X	X	X	X	X	X	-	-	X	X	X	-	
4.6-1b: Construction Worker Environmental Awareness Training and Education Program.	X	-	X	X	X	X	X	X	X	-	-	X	X	X	-	
4.6-1c: General Avoidance and Minimization Measures.	X	-	X	X	X	X	X	X	X	-	-	X	X	X	-	
4.6-1q: Frac-out Contingency Plan	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	
4.6-3: Avoid, Minimize, and or Mitigate Impacts to Wetlands.	-	-	-	-	-	X	X	-	-	-	-	X	X	X	-	
Impact 4.6-4: Be inconsistent with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance with local tree ordinances.	SU	LSM	SU	LSM	LSM	SU	LSM	SU	LSM	LSM	LSM	LSM	LSM	LSM	SU	**SU**
Mitigation Measures																
4.6-1n: Habitat Mitigation and Monitoring Plan.	X	-	X	-	-	X	-	X	-	-	-	-	-	-	X	
4.6-4: Compliance with Local Tree Ordinances.	-	X	X	X	X	X	X	X	X	X	X	X	X	X	-	
Impact 4.6-5: Introduce or spread an invasive non-native species during construction.	LSM	LSM	LSM	NI	NI	LSM	LSM	LSM	LSM	LSM	LSM	NI	NI	NI	NI	**LSM**
Mitigation Measures																
4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.	X	X	X	-	-	X	X	X	X	X	X	-	-	-	-	
4.6-1p: Control Measures for Spread of Invasive Plants.	X	X	X	-	-	X	X	X	X	X	X	-	-	-	-	

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.6: Terrestrial Biological Resources (cont.)																
Impact 4.6-6: Result in substantial adverse effects on candidate, sensitive, or special-status species during project operations.	LSM	LSM	NI	NI	NI	NI	NI	NI	LSM	LSM	NI	NI	LSM	LSM	NI	**LSM**
Mitigation Measures																
4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1b: Construction Worker Environmental Awareness Training and Education Program.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1c: General Avoidance and Minimization Measures.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1d: Protective Measures for Western Snowy Plover.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1e: Avoidance and Minimization Measures for Special-status Plants.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1f: Avoidance and Minimization Measures for Smith's Blue Butterfly.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1g: Avoidance and Minimization Measures for Black Legless Lizard, Silvery Legless Lizard, and Coast Horned Lizard.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1i: Avoidance and Minimization Measures for Nesting Birds.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1n: Habitat Mitigation and Monitoring Plan.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1p: Control Measures for Spread of Invasive Plants.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-6: Installation and Monitoring of Bird Deterrents at the Brine Storage Basin.	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.12-1b: General Noise Controls for Construction Equipment.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.12-5: Stationary Source Noise Controls.	-	-	-	-	-	-	-	-	-	X	-	-	X	-	-	
4.14-2: Site-Specific Nighttime Lighting Measures.	X	-	-	-	-	-	-	-	X	-	-	-	-	X	-	
Impact 4.6-7: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during project operations	LSM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	**LSM**
Mitigation Measures																
4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1b: Construction Worker Environmental Awareness Training and Education Program.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1c: General Avoidance and Minimization Measures.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1d: Protective Measures for Western Snowy Plover	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1n: Habitat Mitigation and Monitoring Plan.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1p: Control Measures for Spread of Invasive Plants	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.6: Terrestrial Biological Resources (cont.)																
Impact 4.6-8: Result in substantial adverse effects on federal wetlands, federal other waters, and waters of the State during project operations.	LSM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	**LSM**
Mitigation Measures																
4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1b: Construction Worker Environmental Awareness Training and Education Program.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1c: General Avoidance and Minimization Measures.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Impact 4.6-9: Introduce or spread an invasive non-native species during project operations.	LSM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	**LSM**
Mitigation Measures																
4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4.6-1p: Control Measures for Spread of Invasive Plants.	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Impact 4.6-10: Conflict with the provisions of an adopted Habitat Conservation Plans, natural community conservation plans or other approved local, regional, or state habitat conservation plan.	NI	NI	NI	NI	NI	NI	NI	LSM	LSM	NI	NI	NI	NI	NI	NI	**LSM**
Mitigation Measures																
4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.								X	X							
4.6-1n: Habitat Mitigation and Monitoring Plan.	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	
4.6-1p: Control Measures for Spread of Invasive Plants.	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	
4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities.	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	
4.6-8: Management Requirements within Borderland Development Areas along Natural Resource Management Area Interface.	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	
Impact 4.6-C: Cumulative impacts related to Terrestrial Biological Resources.	**SU for cumulative impacts associated with inconsistencies with local policies or ordinances protecting biological resources.** **LSM for cumulative impacts associated with all other project impacts.**															
Section 4.7: Hazards and Hazardous Materials																
Impact 4.7-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during construction.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.7-2: Encountering hazardous materials from other hazardous materials release sites during construction.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM		**LSM**
Mitigation Measures																
4.7-2a: Health and Safety Plan.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4.7-2b: Soil and Groundwater Management Plan.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.7: Hazards and Hazardous Materials (cont.)																
Impact 4.7-3: Project facilities would be located on a known hazardous materials site.	NI	NI	NI	NI	NI	NI	NI	LS	LS	NI	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.7-4: Handle hazardous materials or emit hazardous emissions within 0.25 mile of schools during construction.	NI	NI	NI	NI	NI	LS	NI	LS	NI	NI	LS	LS	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.7-5: Increase risk of wildland fires during construction.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.7-6: Create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials during project operations.	LS	LS	NI	NI	NI	NI	NI	NI	LS	LS	NI	NI	NI	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.7-C: Cumulative impacts related to Hazards and Hazardous Materials.	**LSM for cumulative impacts associated with the potential to encounter hazardous materials during construction.**															
Section 4.8: Land Use, Land Use Planning, and Recreation																
Impact 4.8-1: Consistency with applicable plans, policies, and regulations related to land use and recreation that were adopted for the purpose of mitigating an environmental effect.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.8-2: Disrupt or preclude public access to or along the coast during construction.	LS	NI	NI	NI	NI	NI	NI	LSM	NI	NI	NI	NI	NI	NI		**LSM**
Mitigation Measures																
4.9-1: Traffic Control and Safety Assurance Plan.	-	-	-	-	-	-	-	X	-	-	-	-	-	-		
Impact 4.8-C: Cumulative impacts related to Land Use, Land Use Planning, and Recreation.	**LS**															
Section 4.9: Traffic and Transportation																
Impact 4.9-1: Temporary traffic increases on regional and local roadways due to construction-related vehicle trips.	LS	LS	LS	LS	LS	LS	LS	LSM	LSM	LSM	LSM	LSM	LSM	LS		**LSM**
Mitigation Measures																
4.9-1: Traffic Control and Safety Assurance Plan.	-	-	-	-	-	-	-	X	X	X	X	X	X	-		
Impact 4.9-2: Temporary reduction in roadway capacities and increased traffic delays during construction.	LS	LS	LSM	LSM	LSM	LSM	LSM	LSM	LS	LS	LSM	LSM	LSM	LS		**LSM**
Mitigation Measures																
4.9-1: Traffic Control and Safety Assurance Plan.	-	-	X	X	X	X	X	X	-	-	X	X	X	-		

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.9: Traffic and Transportation (cont.)																
Impact 4.9-3: Increased traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways during construction.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM		**LSM**
Mitigation Measures																
4.9-1: Traffic Control and Safety Assurance Plan.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Impact 4.9-4: Impaired emergency access during construction.	LS	LS	LSM	LSM	LSM	LSM	LSM	LSM	LS	LS	LSM	LSM	LSM	LS	LS	**LSM**
Mitigation Measures																
4.9-1: Traffic Control and Safety Assurance Plan.	-	-	X	X	X	X	X	X	-	-	X	X	X	-	-	
Impact 4.9-5: Temporary disruptions to public transportation, bicycle, and pedestrian facilities during construction.	NI	NI	LSM	NI	NI	LSM	LSM	LSM	NI	NI	NI	NI	NI	NI		**LSM**
Mitigation Measures																
4.9-1: Traffic Control and Safety Assurance Plan.	-	-	X	-	-	X	X	X	-	-	-	-	-	-		
Impact 4.9-6: Increased wear-and-tear on the designated haul routes used by construction vehicles.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM		**LSM**
Mitigation Measures																
4.9-6: Roadway Rehabilitation Program.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Impact 4.9-7: Parking interference during construction.	NI	NI	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LSM	**LSM**
Mitigation Measures																
4.9-7: Construction Parking Requirements.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	
Impact 4.9-8: Long-term traffic increases on regional and local roadways during project operations and maintenance.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.9-C: Cumulative impacts related to Traffic and Transportation.	**SU for cumulative impacts associated with traffic during construction.**															
Mitigation Measure 4.9-C: Construction Traffic Coordination Plan.	**X**															
Section 4.10: Air Quality																
Impact 4.10-1: Generate emissions of criteria air pollutants and contribute to a violation of an ambient air quality standard during construction.	SU	SU	SU	SU	SU	SU	SU	SU	SU	SU	SU	SU	SU	SU		**SU**
Mitigation Measures																
4.10-1a: Equipment with High-Tiered Engine Standards.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4.10-1b: Idling Restrictions.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4.10-1c: Construction Fugitive Dust Control Plan.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4.10-1d: Pave Terminal Reservoir Access Road.	-	-	-	-	-	-	-	-	X	-	-	-	-	-		

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.10: Air Quality (cont.)																
Impact 4.10-2: Construction activities could conflict with implementation of the applicable air quality plan.	SU	SU	SU	SU	SU	SU	SU	SU	SU	SU	SU	SU	SU	SU		**SU**
Mitigation Measures																
4.10-1a: Equipment with High-Tiered Engine Standards.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4.10-1b: Idling Restrictions.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Impact 4.10-3: Expose sensitive receptors to substantial pollutant concentrations and/or *Coccidioides immitis* (Valley Fever) spores or create objectionable odors affecting a substantial number of people during construction.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.10-4: Long-term increase of criteria pollutant emissions that could contribute to a violation of an ambient air quality standard during operations.	LS	LS	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.10-5: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations.	NI	LS	NI	NI	NI	NI	NI	NI	NI	LS	NI	NI	NI	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.10-C: Cumulative impacts related to Air Quality.	**SU for cumulative impacts associated with air quality standards during construction.**															
Section 4.11: Greenhouse Gas Emissions																
Impact 4.11-1: Incremental contribution to climate change from GHG emissions associated with the proposed project.	**SU**															
Mitigation Measures																
4.11-1: GHG Emissions Reductions Plan.	**X**															
4.18-1: Construction Equipment Efficiency Plan.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Impact 4.11-2: Conflict with the Executive Order B-30-15 Emissions Reduction Goal.	**SU**															
Mitigation Measures																
4.11-1: GHG Emissions Reduction Plan.	**X**															
4.18-1: Construction Equipment Efficiency Plan.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Impact 4.11-3: Conflict with AB 32 Climate Change Scoping Plan.	**SU**															
Mitigation Measures																
4.11-1: GHG Emissions Reduction Plan.	**X**															
Impact 4.11-C: Cumulative impacts related to Greenhouse Gas Emissions.	**SU for cumulative contribution to GHG emissions and conflicts with AB32 and Executive Order B-30-15 during construction and operation.**															

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.12: Noise and Vibration																
Impact 4.12-1: Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity during construction.	LS	LS	LS	LS	LS	LSM	SU	LSM	LS	SU	LS	LS	LS	LSM		**SU**
Mitigation Measures																
4.12-1a: Neighborhood Notice and Construction Disturbance Coordinator.	-	-	-	-	-	X	X	X	-	X	-	-	-	X		
4.12-1b: General Noise Controls for Construction Equipment and Activities.	-	-	-	-	-	X	X	X	-	X	-	-	-	X		
4.12-1c: Noise Control Plan for Nighttime Pipeline Construction.	-	-	-	-	-	X	X	X	-	-	-	-	-	-		
4.12-1d: Additional Noise Controls for ASR-5 and ASR-6 Wells.	-	-	-	-	-	-	-	-	-	X	-	-	-	-		
4.12-1e: Offsite Accommodations for Substantially Affected Nighttime Receptors.	-	-	-	-	-	-	-	-	-	X	-	-	-	-		
Impact 4.12-2: Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during construction.	LS	LS	LS	LS	LS	LSM	LSM	LSM	LSM	NI	LSM	LS	LS	LS		**LSM**
Mitigation Measures																
4.12-1b: General Noise Controls for Construction Equipment.	-	-	-	-	-	X	X	X	X	-	X	-	-	-		
4.12-1c: Noise Control Plan for Nighttime Pipeline Construction.	-	-	-	-	-	X	X	X	-	-	-	-	-	-		
Impact 4.12-3: Exposure of people to or generation of excessive groundborne vibration during construction.	LS	LS	LSM	LS	LS	LSM	LSM	LSM	LS	LS	LS	LS	LS	LS		**LSM**
Mitigation Measures																
4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, Downtown Monterey, and the Lapis Sand Mining Plant Historic District.	-	-	X	-	-	-	-	-	-	-	-	-	-	-		
4.12-3: Vibration Reduction Measures.	-	-	-	-	-	X	X	X	-	-	-	-	-	-		
Impact 4.12-4: Consistency with the construction time limits established by the local jurisdictions.	NI	NI	NI	NI	NI	LSM	NI	LSM	NI	LSM	NI	NI	NI	NI		**LSM**
Mitigation Measures																
4.12-1c: Noise Control Plan for Nighttime Pipeline Construction.	-	-	-	-	-	-	-	-	-	X	-	-	-	-		
4.12-4: Nighttime Construction Restrictions in Marina.						X		X								
Impact 4.12-5: Substantial permanent increases in ambient noise levels in the project vicinity above levels existing without the project during operations.	LS	LS	NI	NI	NI	NI	NI	NI	LS	LSM	NI	LS	LSM	LS		**LSM**
Mitigation Measures																
4.12-5: Stationary-Source Noise Controls.	-	-	-	-	-	-	-	-	-	X	-	-	X	-		
Impact 4.12-6: Expose people to or generate operational noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during operation.	LS	LS	LS	LS	LS	LS	NI	LS	LS	NI	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.12-C: Cumulative impacts related to Noise and Vibration	**SU for cumulative impacts associated with nighttime noise impacts during construction.** **LSM for cumulative impacts associated with construction-related vibration.**															

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.13: Public Services and Utilities																
Impact 4.13-1: Disrupt or relocate regional or local utilities during construction.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM		**LSM**
Mitigation Measures																
4.13-1a: Locate and Confirm Utility Lines.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4.13-1b: Coordinate Final Construction Plans with Affected Utilities.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4.13-1c: Safeguard Employees from Potential Accidents Related to Underground Utilities.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4.13-1d: Emergency Response Plan.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4.13-1e: Notify Local Fire Departments.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4.13-1f: Ensure Prompt Reconnection of Utilities.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Impact 4.13-2: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during construction.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM		**LSM**
Mitigation Measures																
4.13-2: Construction Waste Reduction and Recycling Plan.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Impact 4.13-3 Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during operations.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.13-4: Exceed wastewater treatment requirements of the Central Coast RWQCB, or result in a determination by the wastewater treatment provider that it has inadequate treatment or outfall capacity to serve the project.	NI	LSM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**LSM**
Mitigation Measures																
4.3-4: Operational Discharge Monitoring, Analysis, Reporting, and Compliance.	-	X	-	-	-	-	-	-	-	-	-	-	-	-		
4.3-5: Implement Protocols to Avoid Exceeding Water Quality Objectives.	-	X	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.13-5: Increased corrosion of the MRWPCA outfall and diffuser as a result of brine discharge associated with project operations.	NI	LSM	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**LSM**
Mitigation Measures																
4.13-5a: Installation of Protective Lining, Periodic Inspections and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall.	-	X	-	-	-	-	-	-	-	-	-	-	-	-		
4.13-5b: Assess Land Segment of MRWPCA Ocean Outfall and Install Protective Lining, If Needed.	-	X	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.13-C: Cumulative impacts related to Public Services and Utilities.	**LSM for cumulative impacts related to wastewater treatment requirement and corrosion of the MRWPCA outfall and diffuser during operations.**															
Section 4.14: Aesthetic Resources																
Impact 4.14-1: Construction-related impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
4.14-1: Maintain Clean and Orderly Construction Sites.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.14: Aesthetic Resources (cont.)																
Impact 4.14-2: Temporary sources of substantial light or glare during construction.	LSM	LS	LSM	LSM	LSM	LSM	LSM	LSM	NI	LSM	NI	NI	NI	NI		**LSM**
Mitigation Measures																
4.14-2: Site-Specific Nighttime Lighting Measures.	X	-	X	X	X	X	X	X	-	X	-	-	-	-		
Impact 4.14-3: Permanent impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.	LSM	LS	NI	NI	NI	NI	NI	NI	LSM	LSM	NI	NI	NI	LS		**LSM**
Mitigation Measures																
4.14-3a: Facility Design.	X	-	-	-	-	-	-	-	X	X	-	-	-	-		
4.14-3b: Facility Screening.	-	-	-	-	-	-	-	-	X	X	-	-	-	-		
Impact 4.14-4: Permanent new sources of light or glare.	NI	LS	NI	NI	NI	NI	NI	NI	LS	LSM	NI	NI	NI	LSM		**LSM**
Mitigation Measures																
4.14-2: Site-Specific Nighttime Lighting Measures.	-	X	-	-	-	-	-	-	X	X	-	-	-	X		
Impact 4.14-C: Cumulative impacts related to Aesthetic Resources	**LSM for cumulative impacts associated with nighttime lighting impacts during construction.**															
Section 4.15: Cultural and Paleontological Resources																
Impact 4.15-1: Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5 during construction.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		**NI**
Mitigation Measures																
4.15-1: Avoidance and Vibration Monitoring for Pipeline Installation	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.15-2: Cause a substantial adverse change during construction in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM		**LSM**
Mitigation Measures																
4.15-2a: Establish Archaeologically Sensitive Areas.	-	-	X	-	-	-	X	-	-	-	-	-	-	-		
4.15-2b: Inadvertent Discovery of Cultural Resources.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Impact 4.15-3: Directly or indirectly destroy a unique paleontological resource or site, or unique geological feature during construction.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.15-4: Disturbance any human remains, including those interred outside of formal cemeteries, during construction.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM		**LSM**
Mitigation Measures																
4.15-4: Inadvertent Discovery of Human Remains.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Impact 4.15-C: Cumulative impacts related to Cultural and Paleontological Resources.	**LS**															

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.16: Agricultural Resources																
Impact 4.16-1: Result in changes in the existing environment that, due to their location or nature, could temporarily disrupt agricultural activities or result in the permanent conversion of farmland to non-agricultural use.	NI	LS	LSM	NI	NI	LSM	LSM	NI	NI	NI	NI	NI	NI	NI		**LSM**
Mitigation Measures																
4.16-1: Minimize Disturbance to Farmland.	-	-	X	-	-	X	X	-	-	-	-	-	-	-		
Impact 4.16-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.	NI	NI	LS	NI	NI	LS	LS	NI	NI	NI	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.16-3: Conflict with zoning for agricultural uses or with Williamson Act contracts.	NI	NI	LS	NI	NI	LS	LS	NI	NI	NI	NI	NI	NI	NI		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.16-C: Cumulative impacts related to Agricultural Resources.	**LSM for cumulative impacts related to conversion of farmland to non-agricultural use during construction.**															
Section 4.17: Mineral Resources																
Impact 4.17-1: Loss of availability of known mineral resources that are of value to the region or residents of the state or result in the loss of a locally-recognized important mineral resource recovery site.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.17-C: Cumulative impacts related to Mineral Resources.	**LS**															
Section 4.18: Energy Conservation																
Impact 4.18-1: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during construction.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM		**LSM**
Mitigation Measures																
4.18-1: Construction Equipment Efficiency Plan.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4.10-1b: Idling Restrictions.	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Impact 4.18-2: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during operations.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS		**LS**
Mitigation Measures																
None proposed.	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Impact 4.18-3: Constrain local or regional energy supplies, require additional capacity, or affect peak and base periods of electrical demand during operations.	**LS**															
Mitigation Measures																
4.11-1: GHG Emissions Reduction Plan	**X**															
Impact 4.18-C: Cumulative impacts related to Energy Resources.	**LSM for impact associated with energy use during construction.**															

TABLE ES-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES – MPWSP PROPOSED ACTION

IMPACT	Subsurface Slant Wells	MPWSP Desalination Plant	Source Water PL	Brine Discharge PL	PL to CSIP Pond	New Desalinated Water PL	Castroville PL	New Transmission Main	Terminal Reservoir	ASR-5 and ASR-6 Wells	ASR Conveyance PL, ASR Pump-to-Waste PL, ASR Recirculation PL	Ryan Ranch-Bishop Interconnection Improvements	Main System-Hidden Hills Interconnection Improvements	Carmel Valley Pump Station	Staging Areas	Overall Impact Significance Determination for Proposed Action
Section 4.19: Population and Housing																
Impact 4.19-1: Induce substantial population growth directly during project construction.									**LS**							
Mitigation Measures																
None proposed.									**-**							
Impact 4.19-2: Induce substantial population growth directly during project operations.									**LS**							
None proposed.									**-**							
Impact 4.19-C: Cumulative impacts related to Population and Housing.									**LS**							
Section 4.20: Socioeconomics and Environmental Justice																
Impact 4.20-1: Reductions in the rate of employment, total income, or business activity in Monterey County.									**LSM**							
Mitigation Measures																
4.9-1: Traffic Control and Safety Assurance Plan.									**X**							
Impact 4.20-2: Disproportionately high and adverse effects on low-income or minority populations.									**LS**							
Mitigation Measures																
None proposed.									**-**							
Impact 4.20-C: Cumulative impacts related to Socioeconomics and/or Environmental Justice.									**LSM for impact associated with interference with businesses during construction.**							

References – Executive Summary

Environmental Science Associates (ESA), 2014. Analysis of Historic and Future Coastal Erosion with Sea Level Rise, March 19, 2014.

Geoscience Support Services, Inc. (Geoscience), 2015. Draft Monterey Peninsula Water Supply Project Groundwater Modeling and Analysis, April 17, 2015.

Monterey Regional Water Pollution Control Agency (MRWPCA), 2015. *Draft Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project.* April 2015.

Ninyo & Moore, 2014. Preliminary Geotechnical Evaluation, Groundwater Replenishment Project EIR, Monterey County, California. December 2, 2014.

RBF Consulting, 2013a. *Memorandum: Recommended Capacity for the Monterey Peninsula Water Supply Project (MPWSP) Desalination Plant.* January 7, 2013.

RBF Consulting, 2013b. *Monterey Peninsula Water Supply Project (MPWSP) Project Description Update.* January 9, 2013.

RBF Consulting, 2013c. *Monterey Peninsula Water Supply Project (MPWSP) Capital and O&M Cost Estimate Update.* January 9, 2013.

State Water Resources Control Board (SWRCB), 2013. Final Report on Analysis of Monterey Peninsula Water Supply Project Proposed in Application 12-04-019 by California American Water Company, July 31, 2013.

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CHAPTER 1
Introduction and Background

Sections

1.1 Introduction

The California American Water Company (CalAm) is proposing to construct and operate the Monterey Peninsula Water Supply Project (MPWSP, or proposed project) in the Monterey Bay area. CalAm is proposing the MPWSP to develop water supplies for CalAm's Monterey District service area (Monterey District). Part of the project's implementation includes obtaining permits and authorizations from various federal, state, regional, and local agencies. The California Public Utilities Commission (CPUC) is the lead State agency for the project. Given that a portion of the project is proposed to occur within Monterey Bay National Marine Sanctuary (MBNMS or Sanctuary), the National Oceanic and Atmospheric Administration's (NOAA's) MBNMS is considering authorizing MPWSP activities within MBNMS.

The California Environmental Quality Act (CEQA) requires that state, regional, and local agencies analyze and disclose potentially significant environmental effects for activities that involve governmental approval through the development of an Environmental Impact Report (EIR). The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies analyze and disclose the impacts of major Federal actions, including those projects regulated or approved by the agency, significantly affecting the quality of the human environment through an Environmental Impact Statement. This Environmental Impact Report and Environmental Impact Statement (EIR/EIS) has been prepared in accordance with CEQA (Cal. Pub. Res. Code §21000 et seq.) and the CEQA Guidelines (Cal. Code Regs., Tit. 20, Div. 6, Ch. 3, §15000 et seq.), and with NEPA (42 U.S.C. §4321 et seq.,) and its implementing regulations (40 CFR Parts 1500-1508). For the purposes of this document, the CEQA lead agency for the MPWSP is the California Public Utilities Commission (CPUC); the NEPA lead agency is MBNMS.

This EIR/EIS has been prepared to analyze and disclose potentially significant environmental effects associated with the construction and operation of the MPWSP proposed by CalAm (also referred to throughout this document as the "proposed project"[1]). This EIR/EIS provides the primary source of environmental information for the lead, responsible, and trustee agencies to consider when exercising any permitting or approval authority related to implementation of CalAm's proposed project or alternatives.

The MPWSP would involve the construction and operation of various facilities and improvements, including a subsurface seawater intake system, a desalination plant, desalinated water storage and conveyance facilities, and expanded Aquifer Storage and Recovery (ASR) facilities. See Chapter 3, Description of the Proposed Project, for a full description of the proposed facilities for the 9.6-million-gallon-per-day (mgd) desalination plant. CalAm's application for the proposed project also includes an option that would meet all of the project objectives by combining a reduced-capacity desalination plant (6.4 mgd) with a water purchase agreement for 3,500 acre-feet per year (afy) of product water from another source, the Pure Water Monterey Groundwater Replenishment (GWR) Project. The CPUC does not consider this option a true alternative to the proposed project as defined under CEQA because consideration of this option would not be based on whether it would avoid or substantially lessen the environmental impacts of the proposed project (CEQA Guidelines §15126.6). Rather, it is a variation of CalAm's proposed project, the implementation of which would be based on CalAm's ability to secure water from the GWR project, instead of a comparison of the significant impacts of the 9.6 mgd option and the 6.4 mgd option. However, for ease of analysis, the 6.4 mgd option is described and analyzed in Chapter 5, Alternatives Screening and Analysis as Alternative 5. See Sections 5.4.7 and 5.4.8 in Chapter 5 for a full description of the proposed facilities for the 6.4 mgd option (with two intake options). The Monterey Regional Water Pollution Control Agency (MRWPCA) certified the Final EIR and approved the GWR Project in October 2015; the GWR Project is described in Section 4.1 of Chapter 4, Environmental Setting (Affected Environment), Impacts, and Mitigation Measures and is one of the projects included in the cumulative scenarios.

This EIR/EIS also evaluates a No Action/No Project alternative, alternatives with different seawater intake systems, and two additional complete desalination project alternatives being proposed by other entities. The analysis in Chapter 5 concludes that the proposed MPWSP is the environmentally superior/preferred alternative among the alternatives that produce at least 9.6 mgd of water; Alternative 5a combined with the GWR Project is the environmentally superior/preferred alternative if the GWR Project is able to produce water in a timely manner.

This chapter describes the roles of the lead agencies and provides the proposed project and proposed action's objectives, the purpose and need for agency actions, background information on the proposed project's setting, and an overview of the environmental review process and the decisions to be made on the proposed project and proposed action.

[1] The term "proposed project" is used when referring to CalAm's proposed MPWSP. This term is used when discussing impacts resulting from implementation of all federal, state, and local permits, approvals, and authorizations. The term "proposed action," more commonly used in NEPA documents, refers specifically to MBNMS' four federal proposed actions described in Section 1.3.2.

1.2 Lead Agency Roles

1.2.1 California Public Utilities Commission

The CPUC is a constitutionally established[2] state agency charged with regulating investor-owned utilities in the transportation, energy, communications, and water industries. The Commission[3] consists of five commissioners who are appointed for six-year terms by the Governor. The commissioners are served by an Executive Director and a staff of professional engineers, economists, policy and industry analysts, attorneys, and administrative law judges (ALJs). The CPUC provides regulatory oversight in the areas of purpose and need, economic cost, ratemaking, safety and reliability, and customer service, among others. The CPUC makes decisions by vote of its commissioners at regularly scheduled public business meetings. More information on the CPUC is provided at: http://www.cpuc.ca.gov.

The CPUC regulates the construction and expansion of water lines, plants, and systems by such private water service providers pursuant to Certificates of Public Convenience and Necessity (Pub. Util. Code §1001) and requires that water service providers charge their customers "just and reasonable rates." (Pub. Util. Code §§451 and 454). More specifically concerning Certificates of Public Convenience and Necessity, "No . . . water corporation . . . shall begin the construction of . . . a line, plant, or system, or of any extension thereof, without having first obtained from the commission a certificate that the present or future public convenience and necessity require or will require such construction." (Pub. Util. Code §1001.) The CPUC may issue a Certificate of Public Convenience and Necessity as requested, refuse to issue it, or issue it for only part of a project, and may attach terms and conditions to the exercise of the rights granted by the Certificate of Public Convenience and Necessity to the extent that, in the CPUC's judgment, the public convenience and necessity so require. (Pub. Util. Code §1005.)

CalAm is a public utility under the CPUC's jurisdiction, and has applied to the CPUC for a Certificate of Public Convenience and Necessity under Public Utilities Code Section 1001 to build, own, and operate all elements of the MPWSP, and also for permission to recover present and future costs for the proposed project by short-term rate increases.

1.2.2 Monterey Bay National Marine Sanctuary

MBNMS was designated in 1992 as a federally protected marine area off of California's central coast. It stretches from Marin to Cambria, encompasses a shoreline length of 276 miles and 4,601 square nautical miles of ocean, and extends an average distance of 30 miles from shore. Its mission is to "understand and protect the coastal ecosystem and cultural resources of Monterey Bay National Marine Sanctuary." Its goals include:

[2] State of California Constitution, Article XII.

[3] The CPUC refers to the state agency as a whole, while the "Commission" refers to the decision-making body consisting of the five commissioners.

- enhancing resource protection through comprehensive and coordinated conservation and management tailored to the specific resources that complements existing regulatory authorities;
- supporting, promoting, and coordinating scientific research on sanctuary resources, and monitoring those resources to improve management decision-making in the sanctuary;
- enhancing public awareness, understanding, and ecologically sound use of the marine environment; and
- facilitating multiple uses of the sanctuary, so long as those uses are compatible with the Sanctuary's primary objective of resource protection, and so long as they are not otherwise prohibited.

As federal lead agency, MBNMS has joined in the preparation of this EIR/EIS for purposes of NEPA compliance and consideration of authorizations for CalAm's proposed project. The authority for MBNMS actions is outlined in Section 1.3.2. Two additional federal agencies (the US Army Corps of Engineers and the US Army) have been invited to act as Cooperating Agencies under NEPA due to their discretionary approval authority over some components of CalAm's proposed project. A complete list of federal agencies and approval authorities is provided in Chapter 3, Table 3-8.

1.3 Project Objectives and Purpose and Need

The MPWSP is needed to replace existing water supplies that have been constrained by legal decisions affecting the Carmel River and Seaside Groundwater Basin water resources. In 1995, the California State Water Resources Control Board (SWRCB) directed CalAm to reduce and eventually terminate surface water diversions from the Carmel River in excess of its legal entitlement of 3,376 acre-feet per year (afy). SWRCB Order 95-10 directed CalAm either to obtain appropriative rights to the water that was being unlawfully diverted, or to obtain water from other sources. In the meantime, to reduce diversions from the Carmel River to the greatest practicable extent, the order directed CalAm to implement conservation measures to offset demand and to maximize its use of the Seaside Groundwater Basin to serve existing customers. (See Chapter 2 for more information on Order 95-10 and the subsequent Cease and Desist Order, SWRCB Order 2009-0060).

In 2006, the Monterey County Superior Court adjudicated the rights of various entities to use groundwater resources from the Seaside Groundwater Basin. In its decision, the Court established the adjudicated water rights of all the users of the Seaside Groundwater Basin, for the purpose of avoiding long-term damage to the basin. The adjudication substantially reduced the amount of groundwater available to CalAm (from approximately 4,000 afy to 1,474 afy). (See Section 2.2.4 in Chapter 2, Water Demand, Supplies, and Water Rights, for more information on the Seaside Groundwater Basin adjudication.)

The need for the proposed MPWSP is predicated on the following:

1. SWRCB Order 95-10, which requires CalAm to reduce and terminate surface water diversions from the Carmel River in excess of its legal entitlement of 3,376 afy;

2. SWRCB Order 2009-0060, which requires CalAm to terminate the diversions in excess of its legal entitlement by December 2021; and

3. The Monterey County Superior Court's adjudication of the Seaside Groundwater Basin, which effectively reduced CalAm's pumping from the Seaside Groundwater Basin from approximately 4,000 afy at the time of the adjudication to CalAm's adjudicated right of 1,474 afy.

1.3.1 CalAm's Project Objectives

The primary objectives of the proposed MPWSP are to:

1. Develop water supplies for the CalAm Monterey District service area to replace existing Carmel River diversions in excess of CalAm's legal entitlement of 3,376 afy, in accordance with SWRCB Orders 95-10 and 2009-0060;

2. Develop water supplies to enable CalAm to reduce pumping from the Seaside Groundwater Basin from approximately 4,000 to 1,474 afy, consistent with the adjudication of the groundwater basin, with natural yield, and with the improvement of groundwater quality;

3. Provide water supplies to allow CalAm to meet its obligation to pay back the Seaside Groundwater Basin by approximately 700 afy over 25 years as established by the Seaside Groundwater Basin Watermaster;

4. Develop a reliable water supply for the CalAm's Monterey District service area, accounting for the peak month demand of existing customers;

5. Develop a reliable water supply that meets fire flow requirements for public safety;

6. Provide sufficient water supplies to serve existing vacant legal lots of record;

7. Accommodate tourism demand under recovered economic conditions;

8. Minimize energy requirements and greenhouse gas emissions per unit of water delivered; and

9. Minimize project costs and associated water rate increases.

The secondary objectives of the MPWSP are to:

1. Locate key project facilities in areas that are protected against predicted future sea-level rise in a manner that maximizes efficiency for construction and operation and minimizes environmental impacts;

2. Provide sufficient conveyance capacity to accommodate supplemental water supplies that may be developed at some point in the future to meet build out demand in accordance with adopted General Plans; and

3. Improve the ability to convey water to the Monterey Peninsula cities by eliminating the hydraulic lowpoint in front of the Naval Postgraduate School, by improving the existing interconnections at satellite water systems and by providing additional pressure to move water over the Segunda Grade.

1.3.2 MBNMS Purpose and Need for Proposed Actions

Four federal proposed actions are addressed in this document and consist of the following: 1) authorization of a Coastal Development Permit to be issued by the City of Marina for CalAm to drill into the submerged lands of the Sanctuary to install a subsurface seawater intake system; 2) authorization of a Central Coast Regional Water Quality Control Board (RWQCB) issued National Pollutant Discharge Elimination System (NPDES) permit or other discharge authorization to allow for the discharge of brine into the Pacific Ocean and MBNMS via an existing ocean outfall pipe; 3) issuance of a special use permit to CalAm for the continued presence of a pipeline[4] conveying seawater to a desalination facility; and 4) issuance of a special use permit to CalAm for the use of Sanctuary sediments to filter seawater for desalination.

The purpose of these proposed actions is to authorize otherwise prohibited activities to occur within MBNMS, to ensure that the State and Federal permits and the proposed project comply with MBNMS regulations, and to ensure that MBNMS resources are protected by requiring terms and conditions that may be necessary. The MBNMS proposed action was prompted by CalAm's request for National Marine Sanctuaries Act (NMSA; 16 U.S.C. §1431 et seq.) authorization and permits to construct, operate, maintain, and decommission subsurface seawater intake facilities under the Sanctuary and to allow brine discharges through an existing ocean outfall facility within the Sanctuary; both activities would be associated with CalAm's proposed desalination plant. Therefore, the need for MBNMS action is to respond to CalAm's request in accordance with NMSA regulations and to protect Sanctuary resources. Since MBNMS has federal authority to issue authorizations, impose additional conditions of approval, or to deny authorizations for CalAm's proposed project, it qualifies as the lead federal agency under NEPA. As part of its review, MBNMS has coordinated with other government agencies that have jurisdiction over CalAm's proposed project. MBNMS actions needed to approve CalAm's project include two authorizations and two special use permits as described below. While the ability to issue authorizations and special use permits is delegated to the MBNMS Superintendent, the ultimate NOAA decision-maker for approval of the EIS and Record of Decision for NEPA is the Assistant Administrator for the National Ocean Service.

1.3.2.1 Authorizations

The NMSA regulations identify activities that are prohibited in the sanctuaries and establish a system of permits or authorizations to allow the conduct of certain types of activities that are otherwise prohibited. Each sanctuary has unique regulatory prohibitions codified within a separate subpart of Title 15, Code of Federal Regulations, Part 922 (i.e., 15 CFR Part 922). Subpart M contains the regulations specific to MBNMS. Section 922.132 of the regulations lists activities that are prohibited or otherwise regulated within the Sanctuary. Among the listed prohibitions, the following prohibited activities relate to the proposed project and qualify for authorizations, pursuant to Section 922.132(e):

[4] The Applicant proposes to use subsurface intakes (slant wells) to supply the desalination plant with source water. The well casings, or pipes, would extend seaward of MHW and would require a Special Use Permit to be present within MBNMS. The proposed slant wells would draw ocean water through the seafloor sediments, which would pre-filter the seawater for use at the desalination plant.

1. Discharging or depositing from within or into the sanctuary any material or other matter, except as specified in A – F of this section. (15 CFR § 922.132(2)(i)).

2. Drilling into, dredging, or otherwise altering the submerged lands of the sanctuary; or constructing, placing, or abandoning any structure, material, or other matter on or in the submerged lands of the sanctuary (15 CFR § 922.132 (4)).

One of the federal decisions to be made by MBNMS is whether or not to authorize two separate state permits (or approvals) that would allow CalAm's proposed drilling into the submerged lands (for installation of the proposed subsurface slant wells) and discharge of brine produced during the desalination process into the waters of the sanctuary.

The term "authorization" is a specific approval tool described in the NMSA regulations at 15 CFR Section 922.49, which provides, in part, that:

> A person may conduct an activity prohibited by subparts L through P, or subpart R, if such activity is specifically authorized by any valid Federal, State, or local lease, permit, license, approval, or other authorization issued after the effective date of MBNMS designation, provided that:
>
> (1) The applicant notifies the Director of the Office of Ocean and Coastal Resource Management, NOAA, or designee, in writing, of the application for such authorization;
>
> (2) The applicant complies with the provisions of Section 922.49;
>
> (3) The Director notifies the applicant and authorizing agency that he or she does not object to issuance of the authorization; and
>
> (4) The applicant complies with any terms and conditions the Director deems reasonably necessary to protect sanctuary resources and qualities.
>
> Upon completion of the review of the application and information received with respect thereto, the Director shall notify both the agency and applicant, in writing, whether he or she has any objection to issuance and what terms and conditions he or she deems reasonably necessary to protect sanctuary resources and qualities.

1.3.2.2 Special Use Permits

NOAA has the authority to issue Special Use Permits for specific activities in national marine sanctuaries in the NMSA to establish conditions of access to, and use of, any sanctuary resource or to promote public use and understanding of a sanctuary resource. Section 310(d) of the NMSA allows NOAA to assess fees for those permits. Currently under consideration are two new Special Use Permit categories of activities: 1) the continued presence of a pipeline conveying seawater to a desalination facility; and 2) the use of MBNMS sediment to filter seawater for desalination. In addition to the two authorizations listed above, the other decision to be made by MBNMS is whether or not to issue Special Use Permits. The authority to issue Special Use Permits is delegated to the Superintendent.

1.4 Project Setting and Background

CalAm, the project applicant, is a privately owned public utility that has served the Monterey Peninsula since 1966. CalAm's Monterey District encompasses most of the Monterey Peninsula, including the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside, and the unincorporated areas of Carmel Highlands, Carmel Valley, Pebble Beach, and the Del Monte Forest. The water supply challenges facing CalAm and the Monterey Peninsula are substantial and have been well-documented in a number of venues including the SWRCB, the Monterey County Superior Court, the CPUC, and the California Legislature. Water sources consist primarily of surface water from the Carmel River and groundwater from the Seaside Groundwater Basin. Because of its geography and rainfall patterns, the area is prone to severe droughts. Rainfall is the primary source of water and groundwater recharge within coastal Monterey County.

1.4.1 The Coastal Water Project

In 2004, CalAm filed Application A.04-09-019 seeking a Certificate of Public Convenience and Necessity from the CPUC for the Coastal Water Project (also referred to as the Moss Landing Project). The Coastal Water Project was intended to replace existing Carmel River water supplies for the CalAm Monterey District service area that are constrained by legal decisions described in Section 1.3, above. In general, the Coastal Water Project involved producing desalinated water supplies, increasing the yield from the Seaside Groundwater Basin ASR system, and building additional storage and conveyance systems to move the replacement supplies to the existing CalAm distribution system. The Coastal Water Project was sized to meet existing water demand and did not include supplemental supplies to accommodate growth. The Coastal Water Project proposed to use the existing intakes at the Moss Landing Power Plant to draw source water for a new 10 mgd desalination plant at Moss Landing, to build conveyance and storage facilities, and to make improvements to the existing Seaside Groundwater Basin ASR system. (Refer to Chapter 3, Description of the Proposed Project, for more information on the existing ASR system.)

On January 30, 2009, the CPUC published a Draft EIR analyzing the environmental impacts of the Coastal Water Project, as well as the environmental impacts of two project alternatives, the North Marina Project[5] and the Regional Project. The CPUC published the Coastal Water Project Final EIR (SCH No. 2006101004) in October 2009 and certified the EIR in December 2009 (Decision D.09-12-017). A year later, in Decision D.10-12-016, the CPUC approved implementation of the Regional Project alternative.

The Regional Project would have been implemented jointly by CalAm, Marina Coast Water District (MCWD), and Monterey County Water Resources Agency (MCWRA), and would have

[5] The North Marina Project alternative included most of the same facilities as the previously proposed Coastal Water Project and, like the previously proposed Coastal Water Project, would only provide replacement supplies to meet existing demand. The key differences between this alternative and the previously proposed Coastal Water Project were that the slant wells and desalination plant would be constructed at different locations (Marina State Beach and North Marina, respectively), and the desalination plant would have a slightly greater production capacity (11 mgd versus 10 mgd).

been built in two phases. It included vertical seawater intake wells on coastal dunes located south of the Salinas River and north of Reservation Road; a 10-mgd desalination plant in North Marina (Armstrong Ranch); product water storage and conveyance facilities; and expansions to the existing Seaside Groundwater Basin ASR system. The second phase of the Regional Project, which was evaluated at a programmatic level of detail, included water to meet demand under buildout of the service-area cities' general plans and water for areas of North Monterey County.

The Coastal Water Project Draft EIR and Final EIR are available for review during normal business hours at the CPUC, 505 Van Ness Avenue, San Francisco, California.

1.4.2 The Monterey Peninsula Water Supply Project

After the CPUC approved the Regional Project, CalAm withdrew its support for that project in January 2012. On July 12, 2012, in Decision D.12-07-008, the CPUC closed the Coastal Water Project proceeding.

In April 2012, CalAm submitted Application A.12-04-019 (CalAm, 2012), asking the CPUC's permission to build, own, and operate a desalination facility for water supply. This project is the MPWSP. The MPWSP incorporates many of the same elements previously analyzed in the Coastal Water Project EIR, including a modified version of the North Marina Alternative that would include a desalination facility and subsurface slant wells at new locations. The MPWSP would include many of the same Aquifer Storage and Recovery (ASR) systems and most of the conveyance and storage facilities that were evaluated for the North Marina Alternative in the Coastal Water Project Final EIR. There are, however, changes to some of the project facilities.

The MPWSP includes the following proposed facilities, all of which are described in detail, and locations shown on figures, in Chapter 3:

1. A seawater intake system, which would consist of 10 subsurface slant wells (eight active and two on standby) extending offshore into the submerged lands of Monterey Bay at the CEMEX sand mining facility in the City of Marina, and a Source Water Pipeline;

2. A 9.6 mgd desalination plant located on a CalAm-owned parcel on Charles Benson Road, which would produce an average of 9.5 mgd of desalinated water supplies. Other facilities would be located with the plant, including pretreatment, reverse osmosis (RO), and post-treatment systems; backwash supply and filtered water equalization tanks; chemical feed and storage facilities; brine storage and conveyance facilities; and other associated non-process facilities;

3. Desalinated water conveyance facilities, including pipelines, pump stations, clearwells, and Terminal Reservoir; and

4. An expanded ASR system, including two additional injection/extraction wells (Wells ASR-5 and ASR-6) and three ASR pipelines (ASR Conveyance Pipeline, ASR Recirculation Pipeline, and ASR Pump-to-Waste Pipeline).

1.4.3 Environmental Review: Context for this Draft EIR/EIS

The previous MPWSP Draft EIR was issued on April 30, 2015, for a 60-day review period. The MPWSP Draft EIR is available for review during normal business hours at the CPUC, 505 Van Ness Avenue, San Francisco, California.

In a letter dated July 9, 2015, the CPUC Energy Division[6] extended the public comment period on the Draft EIR until September 30, 2015 for three reasons:

1. To address a possible conflict of interest associated with one of the CPUC's environmental subconsultants, Geosciences;

2. To provide access to the data, models, and assumptions used by Geosciences in the hydrogeologic modeling work; and

3. To seek comments from the public on the advisability of recirculating the Draft EIR as a joint state/federal environmental review document (EIR/EIS) that complies with both CEQA and NEPA requirements, in coordination with the Sanctuary.

Approximately 150 comment letters from various federal, state, and local agencies, special interest groups, and individuals were received during the 5-month Draft EIR public review period. In September 2015, after considering the Draft EIR comments and based on conversations with the Sanctuary and internal CPUC deliberations, the CPUC Energy Division announced that the Draft EIR would be modified and recirculated as a joint EIR/EIS in coordination with MBNMS; the groundwater modeling would be peer-reviewed and updated by a new groundwater modeling consultant; and the recirculated document would further consider as alternatives the two other active desalination proposals at Moss Landing: the Monterey Bay Regional Water Project (aka DeepWater Desal) and the People's Moss Landing Water Desalination Project (the People's Project).

On August 26, 2015, NOAA's Office of National Marine Sanctuaries started the NEPA process by issuing a Notice of Intent (NOI) to prepare an EIS for the project (80 Fed. Reg. 51787). The NOI solicited input on the issues to be analyzed in depth related to the portion of the proposed project within the Sanctuary's boundaries. On September 10, 2015, MBNMS held a NEPA scoping meeting for the project; the scoping period closed on October 2, 2015. A summary of EIS scoping comments is provided in **Appendix A**.

To address questions about the accuracy and credibility of the groundwater modeling work that was the subject of the potential conflict of interest comments, the CPUC made the groundwater data files available for public review, and the CPUC employed the Lawrence Berkeley National Laboratory to conduct an independent evaluation of that data and the results of that evaluation are provided in **Appendix E1**.

Per CEQA Guidelines Section 15088.5(f)(1), regarding the treatment of comments when recirculating a substantially revised, complete EIR, the CPUC need not provide individual

[6] Energy Division handles CEQA work for the CPUC, even on non-energy projects like this one.

responses to comments received on the April 2015 Draft EIR, and such responses are therefore not provided in this EIR/EIS. Instead, the comments received on the April 2015 Draft EIR by September 2015 will become part of the administrative record of this proceeding, and key substantive comments and themes of comments received on the April 2015 Draft EIR have been addressed in the appropriate sections of this EIR/EIS. See Section 1.5, Environmental Review Process, for details about the CPUC's and the Sanctuary's joint CEQA/NEPA process for the proposed project. Under Section 15088.5(f)(1), new comments must be submitted on this Draft EIR/EIS and it is only these new comments that will be responded to in a Final EIR/EIS.

1.4.4 Revisions Made in This EIR/EIS

On March 14, 2016, CalAm filed an Amended Application with the CPUC (CalAm, 2016) in response to feedback from the community and resource agencies, the findings made in the April 2015 Draft EIR alternatives analysis regarding pipeline alignments, and increased technical knowledge and experience resulting from the installation and operation of the test slant well.[7] The updated project description provided in Appendix H of CalAm's Amended Application reflects modifications to facilities analyzed in the 2015 Draft EIR. These modifications are included in this EIR/EIS project description (Chapter 3). The most substantial modifications include:

1. Revised slant well layout at CEMEX:
    a. Revised slant well configuration: two sites with three slant wells each and four sites with a single well. (The previous configuration had the 10 slant wells grouped at three sites.)
    b. Six single-story electrical control cabinets. (The previous configuration included one electrical control building for all wells.)
    c. Well Sites 1 through 6 would include the following aboveground facilities: one wellhead vault per slant well, mechanical piping (meters, valves, and gauges), an electrical control cabinet, and a pump-to-waste vault. At all but Site 1, the new permanent slant wells and associated aboveground infrastructure would be built on a 5,250- to 6,025-square-foot concrete pad located above the maximum high tide elevation on the inland side of the dunes (no concrete pad would be constructed at Site 1). Wellheads and mechanical piping would be located aboveground. (With the exception of the electrical control building, the previous configuration located all of the wellhead facilities below grade.)
2. Revised alignments for the roughly 21 miles of conveyance pipelines.

[7] In October 2014, MBNMS finished its NEPA review of the construction of the test slant well and the operation of the pilot program. In November 2014, the City of Marina and the California Coastal Commission completed their CEQA review. The test slant well is permitted to operate until February 2018 and it is not part of the proposed project being evaluated in this EIR/EIS. If the MPWSP with subsurface slant wells at CEMEX is not approved and implemented, the test well will be removed as analyzed and approved pursuant to the CEQA and NEPA reviews of the test slant well project. However, if the proposed subsurface slant wells at CEMEX are ultimately approved as part of the proposed project, CalAm would convert the test slant well into a permanent well and operate it as part of the proposed seawater intake system. The conversion and long-term operation of the well has not been covered under previous approvals and is evaluated in this EIR/EIS as part of the proposed project.

a. The "New" Transmission Main (product water pipeline south of Reservation Road that was evaluated in the April 2015 DEIR as an Alternative Pipeline) becomes the proposed pipeline.

b. The Transfer Pipeline evaluated in the April 2015 DEIR has been eliminated, since it is no longer necessary due to the alignment of the New Transmission Main and the New Monterey Pipeline.

3. The "New" Monterey Pipeline (product water pipeline connecting Seaside and Pacific Grove) is discussed in the Chapter 4 cumulative analysis for each topical area to which its impacts are relevant, since the CPUC in Decision 1609021 on September 15, 2016, authorized CalAm to build the Monterey Pipeline and Monterey Pump Station, subject to compliance with a Mitigation Monitoring and Reporting Program.

4. The ASR Pump Station has been eliminated. The Monterey (Hilby) Pump Station, like the new Monterey Pipeline discussed above and for the same reason, is discussed in the Chapter 4 cumulative analysis for each topical area where relevant.

5. The preferred method of returning water to the Salinas Valley now includes a new 5-mile-long pipeline to the city of Castroville, with connections to the Castroville Community Services District (CCSD) and Castroville Seawater Intrusion Project (CSIP) distribution systems. Returning the water via the existing CSIP pond is retained as a backup option. (Previously, Salinas Valley return flows would be returned to the existing CSIP pond at the MRWPCA Regional Wastewater Treatment Plant.)

6. Revised construction assumptions, phasing, and schedule.

In addition to the project description changes, this EIR/EIS includes several other substantive revisions to the 2015 Draft EIR. These include some re-organization of the document, revised technical studies, and revisions to the analyses as a result of the revised technical studies, including:

1. MBNMS has authorizations and Special Use Permits it must consider granting, as the federal lead agency. These proposed actions are discussed in Section 1.3.2, above.

2. All topical sections (in Chapter 4) have been revised in response to the amended project description (Chapter 3).

3. Cumulative impacts are now addressed within each topical section in Chapter 4, rather than being addressed in a separate chapter.

4. The Variant (Reduced Project) is now referred to as Alternative 5 and is evaluated in Chapter 5, Alternatives Screening and Analysis, rather than in a stand-alone chapter. The DeepWater Desalination Project and the People's Project are also addressed in Chapter 5, Alternatives Screening and Analysis.

5. New brine discharge modeling has been performed. It is included as Appendix D1 and reflected in Sections 4.3, Surface Water Hydrology and Water Quality, and Section 4.5, Marine Biological Resources.

6. New Ocean Plan Water Quality Compliance analysis has been performed; it is included as Appendix D3 and is reflected in Sections 4.3, Surface Water Hydrology and Water Quality, and Section 4.5, Marine Biological Resources.

7. Lawrence Berkeley National Laboratory has peer-reviewed the groundwater modeling performed for the April 2015 Draft EIR and it is included as Appendix E1.

8. New North Marina groundwater modeling has been performed. It is included as Appendix E2 and reflected in Section 4.4, Groundwater Resources and Chapter 5, Alternatives Screening and Analysis.

9. The coastal hazards analysis has been revised as a result of the re-located wells at the CEMEX sand mine property. That analysis is included as Appendix C2 and reflected in Section 4.2, Geology, Soils, and Seismicity.

10. Sensitive plant lists and calculations regarding energy consumption and air pollutant and greenhouse gas (GHG) emissions have been revised.

1.5 Environmental Review Process and Use of This Document

This EIR/EIS has been prepared in compliance with CEQA (Pub. Res. Code §21000 et seq.) and NEPA (42 U.S.C. §4321 et seq.). This EIR/EIS is a public document for use by the CPUC, MBNMS, other governmental agencies, and the public in identifying and evaluating the potential environmental consequences of the proposed project and proposed federal actions, identifying mitigation measures to lessen or eliminate adverse impacts, and examining feasible alternatives to the proposed project. The impact analyses in this report are based on a variety of sources; references for these sources are listed at the end of each technical section.

This EIR/EIS will be used primarily by the CPUC, as the CEQA Lead Agency, and by MBNMS, as the NEPA Lead Agency, to evaluate environmental impacts of the proposed project and its alternatives as part of the decision-making processes of these agencies. It is expected that the CPUC, the Sanctuary, and other responsible, trustee, and relevant agencies will use this EIR/EIS in deciding whether to approve the MPWSP or any alternative to, or of, the MPWSP. The analyses contained within this EIR/EIS would be used to determine any necessary regulatory permits, authorizations, or approvals.

1.5.1 Notice of Preparation, Notice of Intent, and Scoping

In accordance with CEQA Guidelines Section 15082, the CPUC issued a Notice of Preparation (NOP) for the MPWSP and circulated it to local, state, and federal agencies, Native American tribal organizations, as well as other interested parties, on October 5, 2012. The NOP solicited both written and verbal comments on the document's scope during a 30-day comment period and provided information on the forthcoming public scoping meetings. Comments were requested by November 5, 2012. The NOP provided a description of the MPWSP, a discussion of possible

alternative projects being considered, a map of the project location and the area, and a summary of the probable environmental effects of the project to be addressed.

In addition to the NOP, the CPUC published legal and display advertisements in the *Monterey Herald* on October 10, October 21 and October 24, 2012; in the *Carmel Pine Cone* on October 12, 2012; in the *Salinas Californian* on October 10 and October 25, 2012; and in Spanish in the *El Sol* on October 12, 2012.

During the CEQA scoping period, the CPUC held a series of three scoping meetings in Monterey County to discuss the proposed project and to solicit public input as to the scope and content of this EIR. Scoping meetings were held on October 24, 2012 in Carmel, and on October 25, 2012 in Seaside.

In accordance with Section 102(2)(C) of NEPA, the NOAA Office of National Marine Sanctuaries published a Notice of Intent (NOI) to prepare an EIS for the proposed project on August 26, 2015 (80 Fed. Reg. 51787). The NOI solicited input on the full spectrum of environmental issues and concerns relating to the scope and content of the EIS, including: the human and marine biological resources that could be affected, the nature and extent of the potential significant impacts on those resources, a reasonable range of alternatives, and mitigation measures. The NOI provided background information, explained the need for action, and disclosed its consultation obligations. The scoping period closed on October 2, 2015.

During the NEPA scoping period, MBNMS held a scoping meeting in Pacific Grove on September 10, 2015 to discuss the proposed project and to solicit public input as to the scope and content of the EIS.

Appendix A of this EIR/EIS contains a copy of the NOP and NOI, a description of public outreach efforts, a summary of comments received during the scoping process and a Draft EIR/EIS Distribution List.

1.5.2 Draft EIR/EIS and Public Review

This joint document constitutes the Draft EIR/EIS, as provided for in CEQA and NEPA, and is consistent with the February 2014 guidance issued by the Executive Office of the President of the United States and the California Governor's Office of Planning and Research entitled, NEPA and CEQA: Integrating Federal and State Environmental Reviews. This EIR/EIS is being circulated to local, state, and federal agencies as well as interested organizations and individuals who wish to review it. Notice of this Draft EIR/EIS was also sent directly to every agency, person, or organization that commented on the CPUC's NOP or the Sanctuary's NOI. The publication of this Draft EIR/EIS marks the beginning of a 45-day public review period that begins for CEQA as of the date the Notice of Completion is filed with the State Clearinghouse and, for NEPA, as of the date the Notice of Availability is published in the Federal Register by the U.S. Environmental Protection Agency (USEPA). All reasonable efforts will be made to begin CEQA and NEPA comment periods on the same day; nonetheless, in the event of a discrepancy, the duration of the comment period shall include the earliest of the start dates and the latest of the end dates.

During the review period, written comments may be mailed or hand delivered to:

Mary Jo Borak California Public Utilities Commission c/o Environmental Science Associates 550 Kearny Street, Suite 800 San Francisco, CA 94108	Karen Grimmer, NEPA Lead Monterey Bay National Marine Sanctuary 99 Pacific Avenue Building 455a Monterey, CA 93940

During the review period, written comments also may be submitted electronically:

by email to:	via the Federal e-Rulemaking Portal:
mpwsp-eir@esassoc.com	Go to https://www.regulations.gov/docket?D=NOAA-NOS-2015-0105 Click the "Comment Now!" icon, complete the required fields and enter or attach your comments.

Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered. All comments received are a part of the public record and generally will be made available for public viewing without change. All personal identifying information (e.g., name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible.

Commenters are requested to include their name and address with the comments. The focus of review should be on the sufficiency of this Draft EIR/EIS in identifying and analyzing the possible impacts on the environment and ways in which the potential significant effects of the proposed project or alternatives might be avoided or mitigated.

1.5.3 Final EIR/EIS

Following circulation of the Draft EIR/EIS and incorporation of public comments and responses to comments, a Final EIR/EIS will be published by the CPUC and submitted into the formal record of the Commission's Certificate of Public Convenience and Necessity proceeding (A.12-04-019).

Concurrently, NOAA will submit the Final EIR/EIS to the USEPA and will publish a Notice of Availability in the Federal Register.

1.5.4 Use of this EIR/EIS in Decision Making

1.5.4.1 CPUC Consideration of the EIR/EIS and Proposed Project

A CPUC Administrative Law Judge (ALJ) will review the Final EIR/EIS and submit a proposed decision to the Commission concerning certification of the EIR/EIS and approval of the MPWSP. Pursuant to CEQA Guidelines Section 15090, as CEQA Lead Agency, the CPUC must certify

that the Final EIR/EIS complies with CEQA and reflects the CPUC's independent judgment and analysis prior to approving the MPWSP or an alternative.

If the CPUC certifies the Final EIR/EIS, it will then decide whether or not to grant the Certificate of Public Convenience and Necessity for the MPWSP, as proposed or modified. In addition to environmental impacts addressed during the CEQA process, the Certificate of Public Convenience and Necessity process will consider any other issues that have been established in the record of the proceeding, including but not limited to economic issues, social impacts, specific routing and alignments, and the need for the project. During this process the CPUC will also take into account testimony and briefs from parties who have formally intervened in A.12-04-019, as well as the formal record of any hearings held by the ALJ in this case. The five CPUC Commissioners will ultimately cast a vote on whether to approve the proposed decision prepared by the ALJ. One or more Commissioners may also prepare alternate proposed decisions that differ from the proposed decision of the ALJ. Whichever proposed decision – original or alternate – garners at least a majority vote of the CPUC Commissioners will become the decision of the Commission. This decision is subject to review within the CPUC and in court.

Should the CPUC decide in favor of the MPWSP, as proposed or as modified, the CPUC must make findings on each significant environmental impact. As to each such impact, the lead agency must find that either (1) the environmental effect has been reduced through mitigation measures to a less-than-significant level, essentially "eliminating, avoiding, or substantially lessening" the expected impacts, or (2) the residual significant adverse impact that cannot be mitigated to less than-significant level is outweighed by project benefits. This latter finding is called a Statement of Overriding Considerations. If the CPUC makes a Statement of Overriding Considerations, it would be included in the record of the project approval and would be mentioned in the notice of determination.

The ALJ may also deny the proposed project, but decide in favor of an alternative that may require further action on the part of other parties and public agencies. The Commission's final decision may therefore include an order for CalAm to return to the Commission at a later time for approval of either a specific project or some form of water purchase agreement, either of which would resolve at a minimum the water supply issues raised by SWRCB Order 95-10 and the Seaside Basin adjudication.

In addition, state law requires lead agencies to adopt a mitigation monitoring and reporting program for those changes to a project that it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. CEQA does not require that the specific reporting or monitoring program be included in the EIR. Throughout this EIR/EIS, however, proposed mitigation measures have been clearly identified and presented in language that will facilitate establishment of a monitoring program. All adopted measures will be included in a mitigation monitoring and reporting program to verify compliance.

1.5.4.2 MBNMS Consideration of the EIR/EIS and Proposed Action

This EIR/EIS will be used by MBNMS, along with other information developed in the formal record (including interagency consultations in compliance with the Endangered Species Act, Marine Mammal Protection Act, Magnuson Stevens Act, and the National Historic Preservation Act, among others), to decide whether or not to authorize a Coastal Development Permit to be issued by the City of Marina under their certified Local Coastal Program, to authorize a NPDES permit to be issued by the Central Coast RWQCB, and to issue two special use permit to CalAm. The decision-making authority for the Record of Decision under NEPA is NOAA's Assistant Administrator for the National Ocean Service (NOAA 216-6A).

1.5.4.3 Other Agencies' Consideration of the EIR/EIS and Proposed Project

Several other agencies will rely on information in this EIR/EIS to inform their decisions over the issuance of specific permits related to project construction or operation. In addition to the CPUC, state agencies such as the SWRCB, the Regional Water Quality Control Boards (Regional Water Boards), California State Lands Commission, California Coastal Commission, Department of Parks and Recreation, Department of Transportation, California Department of Fish and Wildlife, and State Historic Preservation Office would be involved in reviewing or approving the proposed project. On the local level, the City of Marina would be reviewing and approving an application for a Coastal Development Permit for the slant wells consistent with their certified Local Coastal Plan. On the federal level, agencies with potential reviewing or permitting authority include NOAA Fisheries, the U.S. Army, the U.S. Army Corps of Engineers, and the U.S. Fish and Wildlife Service (USFWS). A complete list of agencies and required permits or other approvals is included in Chapter 3, Description of the Proposed Project, Table 3-8.

1.6 Organization of EIR/EIS

The remaining chapters of this EIR/EIS are organized as follows:

Chapter 2 (Water Demand, Supplies, and Water Rights) provides background information on CalAm's existing water supply system; describes the water demand and supply information and assumptions included in CalAm's application; provides supplemental information about water supply and demand, and factors affecting them in the area that would be served by the proposed project; and addresses the topic of water rights as it pertains to project feasibility.

Chapter 3 (Description of the Proposed Project) describes the components of the MPWSP proposed by CalAm, including construction, operations and maintenance. The information in this chapter is intended to provide a common basis for the analysis of environmental impacts.

Chapter 4 (Environmental Setting [Affected Environment], Impacts, and Mitigation Measures) is divided by issue area or topic. Each issue area section describes the regional and local environmental setting (the "affected environment"); describes the Sanctuary and sanctuary resources; summarizes applicable laws, regulations, plans, and standards (the "regulatory

framework"); identifies the thresholds and other criteria evaluated to determine whether a potential impact would be significant; summarizes the analytical methodology used; analyzes direct, indirect, and cumulative effects; identifies mitigation measures to address adverse effects; and explains the residual impacts that would remain after the implementation of all recommended mitigation measures.

Chapter 5 (Alternatives Screening and Analysis) describes the alternatives screening process, identifies several alternatives to the proposed project that are being carried forward for full analysis, including the No Action alternative, and summarizes alternatives identified but removed from consideration. This chapter also includes the impact analysis for each alternative and a detailed comparison of the alternatives to the proposed project. An environmentally superior/preferred alternative is identified.

Chapter 6 (Other Considerations) addresses other CEQA and NEPA issues, including significant unavoidable impacts, significant irreversible changes, short-term versus long-term uses, growth-inducing impacts, and project consistency with MBNMS Desalination Guidelines.

Chapter 7 (Coordination, Consultation, and Report Preparation) outlines the federal agency consultation process conducted for the project and identifies the authors of the EIR/EIS.

Chapter 8 (Index) includes an alphabetical list of key words and their associated page numbers within the EIR/EIS.

The Appendices include a scoping summary, a Draft EIR/EIS distribution list, technical reports and other supporting information.

References – Introduction and Background

California American Water (CalAm), 2012. Before the Public Utilities Commission of the State of California, A.12-04-019, Application of California-American Water Company (U210W) for Approval of the Monterey Peninsula Water Supply Project and Authorization to Recover All Present and Future Costs in Rates, Filed April 23, 2012.

California American Water (CalAm), 2016. Before the Public Utilities Commission of the State of California, A.12-04-019, Amended Application of California-American Water Company (U210W), Filed March 14, 2016.

Monterey County Superior Court, 2006. California American Water, Plaintiff, vs. City of Seaside, City of Monterey, et al., Case No. M66343, Decision. Filed March 27, 2006.

State Water Resources Control Board (SWRCB), 1995. Order No. WR 95-10: Order on Four Complaints Files Against The California-American Water Company, Carmel River, Monterey County. July 6, 1995.

CHAPTER 2
Water Demand, Supplies, and Water Rights

Sections	Tables
2.1 Introduction	2-1 Seaside Groundwater Basin Adjudicated Operating and Natural Safe Yields with CalAm's Pre-adjudication Production
2.2 Background	2-2 Existing Demand 2006–2015
2.3 CalAm Service Area Demand	2-3 Other Demand Assumptions
2.4 Available Supplies	2-4 CalAm Monterey District Water Supplies with Proposed MPWSP
2.5 Other Supply and Demand Considerations	2-5 Future Water Demand – Service Area Jurisdictions
2.6 Water Rights	

2.1 Introduction

In its application to the California Public Utilities Commission (CPUC) for the Monterey Peninsula Water Supply Project (MPWSP, or proposed project), California American Water (CalAm) proposes either to build a desalination plant with the capacity to produce up to 9.6 million gallons per day (mgd) of desalinated product water, or to build a smaller project that would include the purchase of product water from the proposed Pure Water Monterey Groundwater Replenishment (GWR) project and construction of a 6.4 mgd desalination plant (CalAm, 2016a). This chapter provides background information on CalAm's existing water supply system; describes the water demand[1] and supply information and assumptions included in CalAm's application; provides supplemental information about water supply and demand, and factors affecting them in the area that would be served by the proposed project; and addresses the topic of water rights as it pertains to project feasibility.

CalAm initially filed its application for the MPWSP (Application A.12-04-019) with the CPUC in April 2012 (CalAm, 2012a). The application requests a Certificate of Public Convenience and Necessity[2] and approval to build, own, and operate the MPWSP. In January 2013, CalAm submitted supplemental testimony that updated and superseded the water demand and supply estimates that had been provided in the original April 2012 application; the January 2013 testimony proposed a 9.6 mgd desalination plant that would produce approximately 10,627 acre

[1] Unless otherwise noted, "demand" as used in this chapter refers to *system demand* (sometimes known as production), which is the total amount of potable water produced from supply sources. Demand does not refer to the amount of water delivered and billed to customers, which is typically referred to as consumption or the amount of water consumed. System demand includes "unaccounted-for" or "non-revenue" water, such as water used for flushing water system pipes and fire fighting, and water lost to leaks within the delivery system.

[2] Public Utilities Code Section 1001 et seq. requires that investor-owned utilities seeking to build certain specified infrastructure obtain a Certificate of Public Convenience and Necessity from the CPUC demonstrating that the proposed infrastructure is necessary for the service, accommodation, convenience, or safety of the public.

feet per year (afy) of desalinated product water to meet estimated service area demand of 15,296 afy and provide return water for the Salinas Valley Groundwater Basin (SVGB return water),[3] or a project variant consisting of a 6.4 mgd plant in conjunction with the purchase of GWR water (Svindland, 2013a). In March 2016, CalAm submitted an amended application and updated project description. The 2016 amended application and associated testimony confirmed the project sizing and overall demand assumptions described in the January 2013 supplemental testimony while updating estimates of the quantities of desalinated product water that would be delivered to CalAm's service area and returned to the SVGB. The demand and supply information presented below is based on data provided in CalAm's January 2013 supplemental testimony, as updated or revised by CalAm since then. The information below also includes relevant supply and demand data collected independently from other sources such as the Monterey Peninsula Water Management District (MPWMD).

CalAm is proposing this project to replace part of its existing water supplies, which have been constrained by legal decisions affecting CalAm's diversions from the Carmel River and pumping from the Seaside Groundwater Basin. State Water Resources Control Board (State Water Board) Order 95-10, State Water Board Order 2009-0060 (also referred to as the Cease and Desist Order, or CDO), and the Monterey County Superior Court's adjudication of the Seaside Groundwater Basin in 2006 substantially reduced CalAm's rights to use these two primary sources of supply. Section 2.2 provides background on CalAm's existing water system and historical sources of supply as well as information about the State Water Board and Superior Court decisions. Section 2.3 discusses the components of demand that CalAm proposes to meet with the proposed project in conjunction with CalAm's portfolio of other water supply sources, and Section 2.4 describes the water supply sources that would be used to meet those demands. Section 2.5 describes other factors that could affect future water supplies and demand in the Monterey District. Section 2.6 discusses the topic of water rights as it pertains to project feasibility.

2.2 Background

2.2.1 Existing Water System

The proposed project would develop supplemental water supplies to serve CalAm's Monterey District service area (Monterey District). CalAm's Monterey District encompasses most of the Monterey Peninsula, including the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside, and the unincorporated areas of Carmel Highlands, Carmel Valley, Pebble Beach, and the Del Monte Forest. The Monterey District's main distribution system is located within these areas. The main system primarily relies on water supplies from the Carmel River and groundwater from the Coastal subarea of the Seaside Groundwater Basin. CalAm's Monterey District also includes five small satellite water systems along the Highway 68 corridor east of the City of Monterey: the Ryan Ranch, Bishop, Hidden Hills, Toro, and Ambler systems. Because the Toro and Ambler areas would not be served by the proposed project, these areas are not included in the proposed project's demand and supply assumptions.

[3] Refer to Section 2.5.1 and Section 2.6 for more information on SVGB return water.

2.2.1.1 Existing Water Supply Facilities

Facility Overview

CalAm's existing Monterey District water supply infrastructure includes the following:

- extraction wells in the Carmel Valley Alluvial Aquifer
- groundwater production wells in the Seaside Groundwater Basin
- a surface water reservoir on the Carmel River[4]
- Aquifer Storage and Recovery (ASR) facilities
- various water treatment facilities
- a conveyance and distribution system consisting of over 500 miles of pipelines and water mains ranging in size from 2 to 36 inches in diameter
- a portion of the supply produced by Sand City's 300 afy Coastal Desalination Plant

The majority of the Monterey District water supply comes from 21 extraction wells screened[5] in the upper alluvial deposits of the Carmel River in Carmel Valley known as the Carmel Valley Alluvial Aquifer. CalAm's Carmel River supplies are supplemented, especially during the summer high-demand season, by groundwater production wells in the Seaside Groundwater Basin. Monterey District water supplies are generally treated to remove iron, manganese, and hydrogen sulfide, to control corrosion, and to adjust pH. Sodium hypochlorite is used for primary and secondary disinfection at each treatment facility that provides water to the distribution system.

Distribution and Conveyance

The CalAm Monterey District's distribution and conveyance system is an assemblage of smaller systems that have merged over time, starting with the Carmel Valley and Monterey Peninsula areas and eventually expanding to include the Seaside, Del Rey Oaks, and Sand City areas. The system encompasses several distinct urban areas and water pressure zones and is divided into four distinct districts:

- Upper Carmel Valley
- Lower Carmel Valley and Monterey Peninsula
- Seaside
- Upper Lift Zones

Water produced from wells along the upper and lower reaches of the Carmel River in the Carmel Valley is conveyed in two directions: westward and clockwise around the Monterey Peninsula to the city of Monterey; and northward over the hills via the Segunda Reservoir, Segunda Pipeline,

4 Until recently CalAm operated two reservoirs on the Carmel River, the San Clemente and the Los Padres Reservoirs. Section 2.2.2 provides additional information on these reservoirs.

5 A well screen is a filtering device that serves as the intake portion of wells constructed in unconsolidated or semi-consolidated aquifers. The screen permits water to enter the well from the saturated aquifer, prevents sediment from entering the well, and serves structurally to support the aquifer material.

Segunda Pump Station, and Crest Tank facilities to the city of Seaside. The two flows converge at a low elevation – a hydraulic trough – near the Naval Postgraduate School in the city of Monterey. This hydraulic trough prevents Carmel River water supplies from being conveyed clockwise around the Monterey Peninsula to Seaside, and also prevents water produced in Seaside (i.e., groundwater pumped from the Seaside Groundwater Basin, including water produced from the existing ASR system) from being conveyed counterclockwise around the Monterey Peninsula.

2.2.2 Historical Sources of Supply

2.2.2.1 Carmel River

San Clemente Dam was built on the upper Carmel River in 1921 to form the San Clemente Reservoir. Surface water diverted at San Clemente Dam was the sole water supply for the Monterey Peninsula until the 1940s. Starting in the 1940s and continuing into the early 1990s, multiple production wells were installed in the Carmel Valley Alluvial Aquifer along the lower reach of the Carmel River. In 1949, Los Padres Dam, which forms Los Padres Reservoir, was built about 6 miles upstream of San Clemente Dam to control the inflow of water into San Clemente Reservoir. CalAm has owned and operated both reservoirs since 1966. Over the years, sediment that accumulated behind San Clemente and Los Padres Dams significantly reduced the usable storage in both reservoirs. As a result, by 1995 CalAm relied primarily on the multiple wells in the alluvial aquifer along the lower Carmel River for its Carmel River supplies and more recently CalAm has relied entirely on these wells for its Carmel River supply. The San Clemente Dam was removed in 2015, after two years of construction work to reroute the river and prepare the site for dam removal, and the Carmel River currently flows around the former dam site (California Coastal Conservancy, National Marine Fisheries Service, CalAm, et al., 2016). Summer releases from the Los Padres Reservoir continue to recharge a portion of the Carmel Valley Alluvial Aquifer and maintain fish habitat between the Los Padres Dam and San Clemente Dam site. MPWMD and CalAm are currently studying options for use or removal of the Los Padres Reservoir (MPWMD, 2015a; CalAm et al., 2016a).[6]

2.2.2.2 Seaside Groundwater Basin

In addition to Carmel River supplies, CalAm operates several production wells for its main system in the Coastal subarea of the Seaside Groundwater Basin. The Seaside Groundwater Basin, which encompasses 24 square miles and consists of several subareas, is generally bounded by the Pacific Ocean to the west, the Salinas Valley to the north, the Toro Park area to the east, and Highways 68 and 218 to the south.

East of the main system along the Highway 68 corridor, in the Laguna Seca subarea of the Seaside Groundwater Basin, CalAm operates wells that supply the Ryan Ranch, Bishop, and Hidden Hills satellite systems (WSC, 2012). CalAm also provides Carmel River water to these systems during fires and emergencies via an interconnection between the Crest Tank and Ryan

[6] The CPUC's General Rate Case for 2015-2017 authorized CalAm to co-fund studies with the MPWMD to develop a long term management plan for the Los Padres Dam and Reservoir, and in April 2016 the MPWMD approved a contract for preparation of the first such study, a Los Padres Dam fish passage study (MPWMD, 2016a).

Ranch. In addition, in June 2015 MPWMD approved CalAm's application for an interconnection between the Bishop and Ryan Ranch systems that would allow water to be conveyed from the Bishop system to Ryan Ranch for emergency use only (i.e., when Ryan Ranch supplies were insufficient to meet demand) (MPWMD, 2015b). As a result of the adjudication of the Seaside Groundwater Basin (see Section 2.2.4), these satellite systems will lose all of their allocated Seaside Groundwater Basin supplies by 2018. Therefore, the demand assumptions presented below in Section 2.3 include demand for the Ryan Ranch, Hidden Hills, and Bishop systems.

CalAm's Toro and Ambler satellite systems lie east of the Laguna Seca subarea, on the south side of Highway 68. There are no existing or proposed infrastructure interconnections between the main system and the Toro and Ambler systems, which rely on groundwater supplies from the Corral de Tierra Subbasin of the SVGB.

2.2.2.3 Allocation Program

The MPWMD augments, manages, and regulates surface and groundwater resources in the Carmel Valley and the greater Monterey Peninsula. MPWMD's jurisdiction includes the area served by CalAm's Monterey District (shown in **Figure 3-1** in Chapter 3, Description of the Proposed Project) and CalAm's sources of supply, which MPWMD defines as the Monterey Peninsula Water Resource System (MPWMD, 2015b). The MPWMD was established by state statute in 1978 to provide integrated management of all water resources for the Monterey Peninsula; among its functions is the allocation of water supply within its boundaries. MPWMD's initial, interim allocation, adopted in 1981, set CalAm's production limit (from the Carmel River system and the Coastal subarea of the Seaside Groundwater Basin) at 20,000 acre-feet (af), of which a net of 18,600 af was allocated among the jurisdictions in CalAm's service area. With the adoption of its current allocation program in 1990, MPWMD set CalAm's production limit at 16,744 afy. MPWMD has adjusted CalAm's production limit several times since then, most recently in 1997 when it set the production limit at 17,641 afy. Before the 2006 adjudication of the Seaside Groundwater Basin (described below in Section 2.2.4), the MPWMD assumed CalAm's yield from the Coastal subarea of the Seaside Groundwater Basin to be 4,000 afy (MPWMD, 2006a). In 2008, MPWMD expanded the regulated area it defines as the Monterey Peninsula Water Resource System to include the Laguna Seca subarea of the Seaside Groundwater Basin (through adoption of MPWMD Ordinance 135).

2.2.2.4 Carmel River Flow Agreements

In addition to MPWMD's allocation program and State Water Board Orders 95-10 and 2009-0060 (discussed below in Section 2.2.3), CalAm's use of its Carmel Valley wells is also restricted by agreements with state and federal wildlife agencies.

California Department of Fish and Wildlife Annual Memorandum of Agreement

An annual Memorandum of Agreement (MOA) developed and entered into each year by CalAm, MPWMD, and the California Department of Fish and Wildlife provides an annual guideline to minimize localized drawdown from the use of wells located along certain reaches of the Carmel

River, and limits surface water diversions from April to October. Before the San Clemente Dam was removed, the MOA specified minimum releases to the river from San Clemente Reservoir (CalAm, 2007). In 2015 the parties established minimum flow targets below the Los Padres Dam, which were expected to produce estimated minimum flows at the gaging station near the San Clemente Dam site (MPWMD, 2015c).

U.S. Fish and Wildlife Service and NOAA Fisheries Agreements

Two federally listed endangered species, the California red-legged frog and steelhead trout, inhabit the Carmel River.[7]

- The California red-legged frog was listed as threatened under the Federal Endangered Species Act (ESA) in 1996. In 1997, the U.S. Fish and Wildlife Service (USFWS) issued an ESA-4(d) rule that allowed it to prosecute for "take"[8] of the frog.
- The south/central California coast steelhead trout was listed as threatened under the ESA in 1997, and in 2000 NOAA Fisheries issued an ESA-4(d) rule allowing it to prosecute for take of steelhead.

USFWS and NOAA Fisheries have taken the position that any entity that pumps water from the Carmel Valley Aquifer may be liable for a take because the pumping may alter the habitat, affect the steelhead's ability to migrate in the river, and affect the frog's ability to grow to maturity. In 1997, CalAm entered into an agreement with USFWS to further regulate its well production activities in an attempt to avoid or mitigate impacts on the frog and has renewed that agreement several times. In 2001, CalAm negotiated a Conservation Agreement with NOAA Fisheries that included various changes in operations, with the long-term goal of procuring an alternative water supply source to reduce withdrawals from the Carmel River Alluvial Aquifer.

If CalAm fails to satisfy USFWS and NOAA Fisheries' concerns regarding ESA, those agencies could bring enforcement actions against CalAm and its customers. The consequences could include further reduction of the water supply obtained from the Carmel Valley Alluvial Aquifer, and fines that could be in the millions of dollars.

2.2.3 State Water Board Order 95-10 and Cease and Desist Order 2009-0060

State Water Board Order 95-10, issued in July 1995, substantially limited the supplies available to CalAm from the Carmel River. In the order, the State Water Board established that CalAm has a legal right to 3,376 afy (equivalent to about 3 mgd) from the Carmel River system, including surface water diversions from the river and subsurface flow pumped from the Carmel Valley Alluvial Aquifer. Prior to Order 95-10, CalAm's average annual use during non-drought years

[7] Refer to Section 4.6, Terrestrial Biological Resources in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, for more information on biological resources in the project area.

[8] As defined in the ESA, to "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

was approximately 14,106 afy (12.6 mgd).[9] The order found that CalAm was diverting approximately 10,730 afy of surface and/or subsurface flow from the Carmel River without a valid basis of right and directed CalAm to diligently undertake the following actions to terminate its unlawful diversions: obtain appropriative rights to the Carmel River water that was being unlawfully diverted; obtain water from other sources and make one-for-one reductions of the unlawful diversions; and/or contract with other agencies that had appropriative rights to divert and use water from the Carmel River. Order 95-10 directed CalAm, during its pursuit of an alternative supply, to implement conservation measures to offset 20 percent of demand[10] and restricted CalAm to an annual diversion of 11,285 afy (10.1 mgd) from Carmel River sources. This amount represented a 20 percent reduction from CalAm's average usage at the time of 14,106 afy. The order also prohibited CalAm from diverting water from San Clemente Dam when streamflows reach a predetermined low flow. The order directed CalAm to maximize use of the Seaside Groundwater Basin for the purpose of serving existing connections, honoring existing commitments (allocations), and to reduce diversions from the Carmel River to the greatest practicable extent (State Water Board, 1995).[11]

In October 2009, the State Water Board adopted Cease and Desist Order 2009-0060, based on the State Water Board's conclusion that Order 95-10 did not authorize CalAm to divert water from the Carmel River in excess of its water rights and that CalAm was illegally diverting water from the Carmel River in violation of Order 95-10 and Water Code Section 1052. The CDO requires that CalAm "diligently implement actions to terminate its unlawful diversions from the Carmel River and … terminate all unlawful diversions from the river no later than December 31, 2016." The CDO prohibits CalAm from diverting water from the Carmel River for new service connections or intensified water use at existing connections, and required CalAm to reduce diversions by 5 percent, or 549 afy, starting in October 2009, with further annual reductions starting in October 2011 and "continu[ing] until all unlawful CalAm diversions from the river have been terminated" (State Water Board, 2009).

In July 2016 the State Water Board adopted Order WR 2016-0016, which amends Order 95-10. Order 2016-0016 extends the date by which CalAm must terminate all unlawful diversions from the Carmel River from December 31, 2016, to December 31, 2021. The Revised CDO set an initial diversion limit of 8,310 afy for Water Year 2015-2016 (October 1, 2015-September 30, 2016) and establishes annual milestones that CalAm must meet in order to maintain the 8,310 afy diversion limit through 2021. The milestones would demonstrate tangible progress in developing alternative water supply that would enable CalAm to reduce and terminate its unlawful diversions. If CalAm fails to meet a milestone, the Revised CDO specifies that the annual diversion limit will be reduced by 1,000 afy. Section 5.4.2, No Project / No Federal Action, provides further discussion on the CDO and the milestones.

[9] 14,106 afy was CalAm's average use of Carmel River water from 1979 to 1988, according to Order 95-10 (citing information provided by CalAm).

[10] Order 95-10 required a conservation reduction, in combination with conservation measures required by the MPWMD, of 15 percent in the 1996 water year and a reduction of 20 percent in each subsequent year.

[11] Water supply projects that were considered by CalAm and the CPUC in response to Order 95-10 prior to the currently proposed project are described in Chapter 5, Alternatives Screening and Analysis.

2.2.4 Seaside Groundwater Basin Adjudication

Another purpose of the proposed project is to reduce CalAm's reliance on the Seaside Groundwater Basin, which is currently CalAm's other principal source of supply for the Monterey District. In March 2006, the Monterey County Superior Court issued a decision in *California American Water v. City of Seaside,* (Super. Ct. Monterey County, 2006, No. M66343), setting forth the adjudicated water rights of the various parties who produce groundwater from the Seaside Basin. The court amended that decision in February 2007.

In August 2003, CalAm sued a number of parties who held, or potentially held, water rights in the Seaside Groundwater Basin, and asked the court to adjudicate those rights. CalAm also asked the court to establish a plan for the coordination of groundwater management within the Seaside Groundwater Basin. Most of the defendants then cross-claimed against CalAm, and the Monterey Peninsula Water Management District and the Monterey County Water Resources Agency both intervened.

By adjudicating the water rights for all users of the basin, the court intended to protect the basin from long-term damage associated with potential seawater intrusion, subsidence, and other adverse effects that commonly result from overpumping. The Decision identified the "natural safe yield"[12] for the basin as a whole, and individually for the Coastal and Laguna Seca subareas, and found that production in each of the preceding 5 years had exceeded the natural safe yield throughout the basin and in each of its subareas. The Decision also found (and noted that all parties agreed) that continued production in excess of the natural safe yield would result in seawater intrusion and deleterious effects on the basin.

The Decision established a physical solution to basin management that was intended to reduce aquifer drawdown to the level of the natural safe yield; to maximize potential beneficial uses of the basin; and to provide a means of augmenting water supply for the Monterey Peninsula. In addition to allocating groundwater rights to the various users, the Decision established an initial "operating safe yield," to be decreased incrementally over time until withdrawals are equal to the identified natural safe yield.[13] The Decision also established the Seaside Groundwater Basin Watermaster, consisting of representatives of the parties to the complaint, to administer and enforce the provisions of the Decision. CalAm's 2007 allocation under the initial operating safe yield was 3,504 afy from the Coastal subarea and 345 afy from the Laguna Seca subarea. CalAm's current (water year[14] 2016) operating yield allocation is 2,254 afy from the Coastal subarea and 48 af from the Laguna Seca subarea (Watermaster, 2015). CalAm's eventual allocation, when withdrawals pursuant to the

[12] The Decision defines "natural safe yield" as the quantity of groundwater in the Seaside Basin that occurs solely as a result of natural replenishment. The estimate of natural safe yield assumes no action is taken to capture subsurface flow exiting the northern boundary of the basin.

[13] The Decision defines "operating safe yield" (also referred to as operating yield) as the maximum amount of groundwater resulting from natural replenishment that the Decision, based upon historical usage, allows to be produced from each subarea for a finite period of years, unless such level of production is found to cause material injury. In general, the initial operating yield for each subarea was to be maintained for the first three water years; starting in the fourth water year and triennially thereafter, it is to be decreased by 10 percent until the operating yield is equivalent to the subarea's natural safe yield.

[14] A water year runs from October 1 through September 30 of the following year, and is named for the year it ends. For example, water year 2016 extends for October 1, 2015, through September 30, 2016.

adjudication equal the natural safe yield of the basin, will be 1,474 afy from the basin overall (Watermaster, 2009). Although this quantity was calculated based on the basin as a whole, by the time withdrawals have been reduced to equal the natural safe yield, the entire natural safe yield of the Laguna Seca subarea will be allocated to other producers with overlying groundwater rights that are superior to CalAm's appropriative rights (Svindland, 2013a); therefore, CalAm's adjudicated right to 1,474 afy from the basin will be drawn from the Coastal subarea.

Table 2-1 summarizes key determinations contained in the Decision and the initial and current production allocations prepared by the Seaside Groundwater Basin Watermaster (Watermaster, 2007, 2015). For comparison, Table 2-1 also shows CalAm's production from the Seaside Groundwater Basin prior to Order 95-10, CalAm's average production for the years following Order 95-10 prior to the adjudication, and the MPWMD allocation for CalAm prior to the adjudication.

TABLE 2-1
SEASIDE GROUNDWATER BASIN ADJUDICATED OPERATING AND NATURAL SAFE YIELDS WITH CALAM'S PRE-ADJUDICATION PRODUCTION

Basin Management Element	Quantity
Initial operating safe yield – entire basin	5,600 af[a]
Total initial (2007) operating safe yield – Coastal subarea (CalAm and other producers)	4,611 af[a]
CalAm's initial (2007) standard production allocation of operating safe yield – Coastal subarea	3,504 af[b]
CalAm's current (water year 2016) operating yield allocation – Coastal subarea	2,254 af
Total initial (2007) operating safe yield – Laguna Seca subarea	989 af[a]
CalAm's initial (2007) standard production allocation – Laguna Seca subarea	345 af[b]
CalAm's current (water year 2016) operating yield allocation – Laguna Seca subarea	48 af
Natural safe yield – entire basin	2,581 – 2,913 afy
Natural safe yield – Coastal subarea	1,973 – 2,305 afy
Natural safe yield – Laguna Seca subarea	608 afy
Natural safe yield – CalAm's eventual allocation – entire basin	1,474 afy[c]
MPWMD allocation for CalAm for the Coastal subarea prior to the adjudication[d]	4,000 afy
CalAm Seaside Basin production when Order 95-10 was issued	2,700 afy
CalAm average annual production, water years 1996–2006, Coastal subarea	3,695 afy
CalAm average annual production, water years 1996–2006, Laguna Seca subarea	432 afy

NOTES: af = acre feet; afy = acre feet per year.

[a] The initial operating safe yield was established for the first three water years (changed from administrative years in the 2007 Amended Decision); at the beginning of the fourth water year and triennially thereafter, it is to be decreased by 10 percent until it is equivalent to the natural safe yield. The adjudication provides for possible revisions of the established operating safe yield based on the findings of the Seaside Groundwater Basin Watermaster.

[b] CalAm's initial standard production allocations are based on the table, "Seaside Basin Groundwater Account Per Amended Decision, Dated February 9, 2007," prepared by the Seaside Groundwater Basin Watermaster.

[c] This Seaside Groundwater Basin Watermaster estimate (Watermaster, 2009) revises the MPWMD's 2006 estimate that CalAm's eventual allocation would be 1,494 afy from the Coastal subarea and zero from the Laguna Seca subarea. Because other Laguna Seca subarea producers have water rights that are superior to those of CalAm, the entire natural safe yield of the Laguna Seca subarea will be allocated to other producers (Svindland, 2013a, pp. 16–17); therefore, CalAm's adjudicated right to 1,474 afy at natural safe yield would be drawn from the Coastal subarea.

[d] At the time, MPWMD's definition of the Monterey Peninsula Water Resource System did not include the Laguna Seca subarea; therefore a corresponding allocation was not provided for that subarea.

SOURCES: Monterey County Superior Court, 2007; MPWMD, 2006a; Watermaster, 2007, 2009, 2015; State Water Board, 1995; Svindland, 2013a.

The Decision also requires that production from the Seaside Groundwater Basin in excess of the natural safe yield (i.e., the difference between the natural safe yield and the interim operating yield limits) be replenished. CalAm and the Seaside Groundwater Basin Watermaster have agreed to a replenishment schedule of 25 years at a replenishment rate of 700 afy (Watermaster and CalAm, 2014). The replenishment volume, which may occur as in-lieu or artificial replenishment,[15] will be based on a running 5-year average. Based on this replenishment schedule, CalAm's proposed sizing of the MPWSP Desalination Plant assumes that, over the 25-year "repayment period," available supply from the Seaside Groundwater Basin will be limited to 774 afy (700 afy less than CalAm's adjudicated right of 1,474) (Svindland, 2013a).

2.3 CalAm Service Area Demand

Based on State Water Board Orders 95-10 and 2009-0060 and the Seaside Groundwater Basin adjudication, CalAm must develop a replacement water supply to meet existing demand in its Monterey District service area. In addition, CalAm proposes to provide sufficient supply to meet demand associated with the development of existing legal lots of record, Pebble Beach water entitlements in the Del Monte Forest area, and tourism demand under improved economic conditions within its service area.

2.3.1 Existing System Demand

Annual demand for CalAm's Monterey District main system plus the Bishop, Ryan Ranch, and Hidden Hills satellite systems between 2006 and 2015 is shown in **Table 2-2**. Average annual demand over this period was 12,351 afy. This estimate of average annual demand is about 940 afy lower than the estimated service area demand CalAm provided in its 2013 testimony (13,291 afy) based on years 2007 through 2011.

TABLE 2-2
EXISTING DEMAND[a] 2006–2015 (acre-feet)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Annual[b] Demand	14,176	14,596	14,439	13,198	12,270	12,129	11,549	11,356	10,250	9,545
10-Year Average (2006-2015): 12,351										

NOTES:
a
b Demand values are for the Monterey District main system plus the Ryan Ranch, Hidden Hills, and Bishop satellite water systems. Demand shown is for the calendar year.

SOURCE: California American Water, 2016b

15 "In-lieu replenishment" refers to programs in which groundwater producers agree to refrain, in whole or in part, from exercising their right to produce their full production allocation with the intent to replenish the Seaside Groundwater Basin through forbearance, in lieu of injection or spreading of non-native water. "Artificial replenishment" refers to the addition of non-native water to the groundwater supply of the Seaside Groundwater Basin, through spreading or direct injection, to offset cumulative over-production from the basin (Monterey County Superior Court, 2007).

CalAm anticipates that by the time the desalination plant is operational, the average 10-year and maximum year demand will be lower than the current 10-year average, most notably due to the continuing decline in per capita water use. As discussed below in Section 2.3.2, CalAm has concluded that demand in 2010, 12,270 afy, represents an appropriate estimate of annual demand for CalAm to use in assessing the adequacy of its water supplies to meet peak demands and regulatory supply capacity requirements.

2.3.2 Peak Demands

While annual water demand characterizes the overall system demand expected to occur within a service area, actual water use fluctuates over the course of a day, month, season, and year. For example, people use less water in the middle of the night and more around dinnertime; they use more during the warmer and drier months and seasons than in the cooler and wetter ones; and they typically use more in dry years than in average or wet years – at least until conservation measures kick in. The California Department of Public Health's California Waterworks Standards[16] require that public water system's water sources have the capacity to meet the system's maximum day demand and (for systems with 1,000 or more service connections) peak hour demand, and specify that maximum day demand and peak hour demand are to be determined based on the most recent ten years of operation. CPUC General Order 103-A also requires that water utilities within its jurisdiction meet these standards. CalAm considers peak month demand a more critical consideration for its operations than peak day demand because the Monterey District's portfolio of supplies provides sufficient flexibility to meet such short term peak demand. By contrast, peak month demand represents more sustained elevated demand, over multiple days, which needs to be considered as a factor in plant sizing (Svindland, 2013b). CalAm hopes to bring the desalination plant on line in 2020. By that time, the 10-year demand record would cover the period from 2010 through 2019, and the 2007, 2008 and 2009 demands will have dropped off the 10-year historical record period. CalAm assumes that demand in years 2016 through 2019 will not exceed demand in 2010 and that 2010 would, therefore, represent the maximum-demand year for this period (Svindland, 2016). CalAm also assumed that peak month demand in 2010 (July 2010), which was the highest month demand of the years 2010 through 2015, adequately represents peak month demand for planning purposes.

2.3.3 Other Service Area Demand Assumptions

CalAm proposes that the MPWSP be sized to provide sufficient supplies to also meet the water demands associated with the anticipated use of water entitlements held by the Pebble Beach Company and other Del Monte Forest property owners ("Pebble Beach water entitlements"); the anticipated economic recovery (or "rebound") of the local hospitality industry, resulting in increased water demand by existing businesses compared to current levels; and demand associated with the development of existing legal lots of record in jurisdictions served by the project (Svindland, 2013a). **Table 2-3** shows existing system demand together with these other demand components, which total approximately 2,005 afy; these demand components are discussed further below.

[16] California Code of Regulations Title 22, Division 4, Chapter 16, Section 64554.

TABLE 2-3
OTHER DEMAND ASSUMPTIONS

Demand Component	Annual Demand (acre-feet)
Existing Service Area Demand	12,270
Pebble Beach Water Entitlements	325
Hospitality Industry Rebound Economic Recovery	500
Legal Lots of Record	1,180
Total to Service Area	**14,275**

SOURCE: RBF Consulting, 2013; CalAm, 2016; Svindland, 2016.

2.3.3.1 Pebble Beach Water Entitlements

In 1989, the MPWMD granted water entitlements totaling 380 afy to the Pebble Beach Company and two other fiscal sponsors for underwriting the development of a wastewater reclamation project. Of this 380 afy, entitlements totaling about 325 afy had not been used (i.e., had not been exchanged for water permits allowing actual water system connections) at the time CalAm revised its estimate of system demands in 2013; the remaining unused entitlements represented water demand that was not reflected in the existing demand figures shown in Table 2-2.

The wastewater reclamation project was jointly undertaken by the Carmel Area Wastewater District, the Pebble Beach Community Services District, and the MPWMD to provide recycled water in lieu of potable water to golf courses in the Del Monte Forest, which includes Pebble Beach. The MPWMD subsequently authorized the Pebble Beach Company to sell a portion of the remaining water entitlements to other Del Monte Forest property owners as a means of financing part of the project. The project now provides 100 percent of the irrigation water for all of the golf courses and some open space areas in the Del Monte Forest. The MPWMD estimates that the project saves approximately 1,000 afy of potable water (Stoldt, 2011). As of 2013, the MPWMD had issued water permits totaling 58.419 afy; the remaining Pebble Beach water entitlements totaled 321.581 afy (MPWMD, 2013a). Testimony by the MPWMD in February 2013 during the CPUC proceedings on the proposed MPWSP confirmed the remaining water entitlements and noted the likelihood that a portion of the 58.419 afy of issued permits have not yet been connected to the CalAm system; the MPWMD testimony concluded that the estimated 325 afy of future demand associated with the Pebble Beach water entitlements is reasonable (Stoldt, 2013).

Since 2013, MPWMD has issued additional water permits associated with the Pebble Beach water entitlements and, as of May 2016, the remaining entitlement for all Pebble Beach entitlement holders stood at 303.768 afy (MPWMD, 2016b). Because the recently issued permits may not immediately translate to water connections and water use, the estimate of 325 afy should remain a reasonable estimate of the portion of the Pebble Beach entitlements not reflected in existing system demands.

2.3.3.2 Hospitality Industry Rebound

The hospitality industry, which includes hotels, restaurants, and other visitor-serving businesses, experienced reductions in occupancy and visitation rates during the economic recession that began in late 2007. Since then, the industry has been recovering slowly: industry representatives expect that occupancy and visitation rates will soon rebound to pre-recession levels. So they feared that CalAm's previous demand estimate, which was based on recession-era numbers, would not accurately reflect demand in a healthy economy. In response to this concern, CalAm's January 2013 revised demand estimate allocated an additional 500 afy to meet demand associated with the future rebound of the local hospitality industry (Svindland, 2013a). CalAm based its estimate on discussions with hospitality industry representatives in the region (RBF, 2013) without providing additional documentation. As discussed below, MPWMD conducted its own assessment of CalAm's estimate using available data (MPWMD, 2013b). The MPWMD compared occupancy and water-use levels for several periods over the last 15 years, finding that the average occupancy level in 2011 was just below 68 percent (compared to 75 percent for the period of 1998 through 2001, when the economy was robust). The analysis noted that if the economy improved, occupancy rates would go up, and the demand for water would rise. So the proposed project should be sized to accommodate an increase in water use. The MPWMD's comparison of commercial-sector water use found that:

- Average annual demand in 2000 was about 440 afy greater than the average annual demand for 2009 through 2011;
- Average annual demand for 2006 through 2008 was 236 afy greater than the average annual demand for 2009 through 2011; and
- A 7 percent increase in the average annual demand in 2009 through 2011 (based on the 7 percent difference in occupancy rates between the 1998–2001 period and 2011) would increase water demand by 194 afy.

The MPWMD's direct testimony to the CPUC in February 2013 concluded that CalAm's estimate of demand related to tourism rebound was reasonable (Stoldt, 2013).[17]

CalAm's 2016 amended application and the testimony supporting it updated the existing service area demand estimate, providing information on average 10-year demand over the period 2006 through 2015, and using demand in 2010 as the basis for its analysis of system operations and the adequacy of anticipated supplies under the project. As in 2013, CalAm's current estimate of system demand includes 500 afy to meet future demand of the existing hospitality industry under recovered conditions. While the current estimate is based on consideration of a longer time frame, and while the region has recovered to some degree from the economic recession, the 10-year period CalAm considered for its demand estimate includes the past four years of drought, during which water use has dropped significantly. Therefore, even if the region's economy has largely recovered, water demand of existing businesses reflected in recent demand data may be lower

[17] For additional review of CalAm's estimate of this component of demand refer to Section 6.3, Growth Inducement. Refer to Section 2.6 of this chapter regarding assumptions about the allocation of water supply provided by the MPWSP.

than would be expected under normal weather conditions. As discussed in more detail in Section 6.3, Growth Inducement, this EIR/EIS assumes that some of the 500 afy CalAm estimates for economic recovery has already occurred, and some of this supply would be available for other uses.

2.3.3.3 Lots of Record

CalAm has repeatedly testified that the proposed project would also provide an estimated 1,181 afy of water to meet demand resulting from the development of vacant legal lots of record in the service area (Svindland, 2012; 2013a; 2016). CalAm had previously included this demand estimate in its 2006 *Urban Water Management Plan* (Management Plan). The 2006 Management Plan cited a 2001 analysis by MPWMD staff as the source for the estimate of 1,181 afy (CalAm, 2006).

In February 2013, the MPWMD reviewed its analyses of water demand related to legal lots of record and found no documentation to support the 1,181 afy estimate. The summary of the results of the documentation review, prepared for the MPWMD Board of Directors (MPWMD, 2013c), defines a legal lot of record as "a lot resulting from a subdivision of property in which the final map has been recorded in cities and towns, or in which the parcel map has been recorded in Parcels or Maps or Record of Surveys. Not all legal lots are buildable."[18] The summary states that "[t]he District does not certify that the estimate of 1,181 afy [for demand associated with vacant lots of record] is a valid value" and does not recommend its continued use.

The summary identifies two reports on the topic of lots-of-record water demand that were prepared for the MPWMD in 2000 and 2002, and notes that the 2001 estimate cited in CalAm's 2006 Management Plan was from an interim period between these two reports. The 2000 report, which had identified demand of 1,166.3 afy for vacant lots and remodels, was not adopted by the MPWMD Board because it did not include estimates for the city of Monterey or the unincorporated county; the revised 2002 report, which identified demand of 1,211 afy, included estimates for the city of Monterey but not for the unincorporated county (MPWMD, 2013c). The MPWMD's direct testimony to the CPUC in February 2013 reiterated these observations, stating that the MPWMD does not consider the 1,181 afy estimate a valid value and that the higher 2002 estimate did not account for vacant lots on improved parcels in the unincorporated areas. Thus, CalAm's estimate may underestimate the actual demand for lots of record (Stoldt, 2013).

On the other hand, comment on the 2015 MPWSP Draft EIR suggested that water demand per lot has likely decreased in years since those reports were prepared. It may be the case that per-lot water demand is somewhat lower than 15 years ago, considering the general trend in lower per capita demand in the service area and throughout the state; however, the extent of such reductions may not be quantifiable based on available data and, more important, water demand for lots in the unincorporated part of the service area had not been estimated at all in the 2000 study and were

[18] An exhibit filed in conjunction with MPWMD testimony in December 2013 states that "[i]t is generally considered that [legal lots of record] are considered buildable by, and have the approval of, the local land use jurisdiction.…" (MPWMD, 2013d).

only partly taken into account in the 2002 study, as stated in the MPWMD testimony. (Refer to Section 6.3, Growth Inducement, for additional discussion of this demand component.)

2.3.4 2010 Urban Water Management Plan Demand Estimates

Under the Urban Water Management Planning Act,[19] CalAm is required to provide information on existing and projected future demand in the Monterey District. The information presented in CalAm's 2010 Management Plan, which was completed in September 2012 (WSC, 2012), is summarized here for informational purposes. The Urban Water Management Planning Act requires all urban water suppliers to prepare a Management Plan (and update it every 5 years) for the purpose of "actively pursu[ing] the efficient use of available supplies." As part of their long-range planning, urban water suppliers must make every effort to meet their customers' needs during normal, dry, and multiple dry water years. So although CalAm did not cite the 2010 Management Plan as the basis for the proposed project's demand estimates, the evaluation of service area demands presented in the Management Plan provides insight into CalAm's expectations regarding population growth and water demand in the Monterey District using a different projection methodology from that used for the proposed MPWSP (summarized above in Sections 2.3.1 through 2.3.3).

2.3.4.1 Urban Water Management Plan Service Area Population

Senate Bill 7, enacted in November 2009,[20] requires all water suppliers in the state to increase water use efficiency. In particular, urban water suppliers must achieve a 20 percent reduction in urban per-capita water use by 2020, and must include in their 2010 Management Plans their baseline per-capita water use; their 2020 per-capita water use target; and an interim (2015) per-capita water use target. Consequently, CalAm performed an assessment of its service area population to calculate per-capita water use and project future service area demands for its 2010 Management Plan.

To determine the population of the Monterey District, which includes portions of unincorporated Monterey County, CalAm took geographic information system (GIS) shapefiles containing 2010 population data by census block obtained from the U.S. Census Bureau, compared those data with their service area boundaries, and determined how much of the service area was within each census block. Based primarily on the area of the Monterey District within each census block,[21] the 2010 Management Plan analysis estimated the population of each of the Monterey District's distribution systems and the District as a whole. The Management Plan indicates that the population of CalAm's entire Monterey District was 99,396 in 2010 and that the combined population of the main system and the Bishop, Hidden Hills, and Ryan Ranch satellite distribution systems, which would also be served by the proposed project, was 95,972. The Management Plan estimated future population growth for each distribution system based on the

19 California Water Code Section 10610 et seq.
20 Codified at California Water Code Sections 10608 and 10800–10853.
21 The UWMP population analysis found that, for the most part, population distribution was generally uniform within each census block; where population was not uniformly distributed, the distribution was adjusted based on visual inspection of recent aerial photographs.

Association of Monterey Bay Area Governments' 2008 forecast, which the Management Plan analysis adjusted to incorporate 2010 census data (WSC, 2012).

2.3.4.2 Urban Water Management Plan Demand Estimates

According to the CalAm 2010 Management Plan, total water use – that is, water delivered to customers and non-revenue water[22] – in the Monterey District in 2010 was 12,809 af. Total water use in the main system and the Bishop, Hidden Hills, and Ryan Ranch satellite systems in 2010 was 12,270 af. The Management Plan presents CalAm's calculation of baseline, interim (2015) target, and 2020 target per-capita water use rates for the Monterey District as required by Senate Bill 7: the baseline, 2015, and 2020 per-capita use rates were be 144, 131, and 118 gallons per-capita per day (gpcd), respectively. But the Monterey District's actual 2010 per-capita water use was 115 gpcd, which was less than its 2020 reduction target, and the Management Plan projections of future water demand between now and 2030 assumed the 115 gpcd rate.

The 2010 Management Plan estimates of non-revenue water are based on information CalAm submitted to the CPUC. The Management Plan indicates that non-revenue water for the Monterey main system decreased from 2,332 afy in 2005 to 1,389 afy in 2010 and was projected to decrease to 1,251 afy in 2030. Non-revenue water data for the satellite systems are not provided for 2005. In 2010, non-revenue water for the main system plus the Bishop, Hidden Hills, and Ryan Ranch satellite systems was 1,445 afy and was projected to decrease to 1,290 afy in 2030. (Refer to Section 2.5.3.3, below, for additional discussion of non-revenue water.)

The 2010 Management Plan projects total water demand in the Monterey District in 2030 to be 13,936 afy, and projects total demand in the main system and the Bishop, Hidden Hills, and Ryan Ranch satellite systems to be 13,544 afy (WSC, 2012). This amount is less than CalAm's current demand estimate for the proposed project service area (14,275 afy) and the supply that would be provided with implementation of the proposed project in conjunction with Carmel River, Seaside Groundwater Basin, and other assumed supplies (discussed in Section 2.4). Demand assumed for the MPWSP differs from that of the Management Plan because CalAm determined that an additional supply and demand analysis was needed to address the repayment of the Seaside Groundwater Basin, the potential for tourism in the area to recover, the Pebble Beach water entitlements, and water for lots of record. These factors are included in CalAm's current assumptions regarding service area demand, as described in Section 2.3.3.

[22] Non-revenue or unaccounted-for water refers to the difference between the total water produced in a system and the total water billed to customers (i.e., water consumed). Non-revenue water includes water lost to leaks in the distribution system, water use that is not billed or tracked in the system, such as water used for firefighting and system flushing, and unauthorized uses.

2.4 Available Supplies

Table 2-4 shows the individual supply sources, both with and without the GWR project.[23] These supply sources are described below. As the table shows, available supplies range from 16,211 afy to 16,994 afy, depending on whether the proposed 6.4 mgd or 9.6 mgd plant is built and whether Seaside Groundwater Basin replenishment is in progress or completed. The "Supply Available for Other Uses" in Table 2-4 is the difference between Total Supplies and Service Area Demand. It represents water from the MPWSP that could be available for other uses, such as returning water to the Salinas Valley Groundwater Basin, or supporting growth. Both uses are discussed in Section 6.3, Growth Inducing Impacts.

2.4.1 Carmel River System

As described above in Section 2.2.3, State Water Board Order 95-10 established that CalAm has a legal right to divert a total of 3,376 afy from the Carmel River system, including surface water diversions from the Carmel River and water pumped from the Carmel Valley Alluvial Aquifer.

2.4.2 Seaside Groundwater Basin Supplies

As described in Section 2.2.4, CalAm's adjudicated right to Seaside Groundwater Basin groundwater at the natural safe yield of the basin is 1,474 afy. CalAm and the Seaside Groundwater Basin Watermaster have agreed to a 25-year replenishment schedule for CalAm to pay back the volume of groundwater CalAm has withdrawn in excess of its adjudicated right. CalAm will start to pay back the basin once it has new water supplies. While repayment could occur as either in-lieu or artificial replenishment, CalAm's supply assumption for the sizing of its MPWSP Desalination Plant is that repayment over the 25-year period will occur as in-lieu replenishment at the rate of 700 afy, based on a 5-year running average. Therefore, supply assumed to be available from the Seaside Basin over this period would be limited to 774 afy, again, based on a 5-year running average.

2.4.3 Aquifer Storage and Recovery

The MPWMD and CalAm have implemented Phase I and Phase II of the Seaside Groundwater Basin Aquifer Storage and Recovery (ASR) project. The ASR project entails diverting and conveying Carmel River water during periods of high flow that occur between December and May of each year to the Seaside Groundwater Basin, where it is injected into the aquifer for storage and subsequently recovered for delivery to customers. The Phase I project, which was completed in 2007, includes two ASR injection/extraction wells (the ASR-1 and ASR-2 Wells, also known as Santa Margarita Wells #1 and #2) and a chemical/electrical building that includes a disinfection system for treating extracted water. The ASR-1 and ASR-2 wells are located at the

[23] The GWR project would convey advanced treated water from the Monterey Regional Water Pollution Control Agency to the Seaside Groundwater Basin, where it could be injected for storage and subsequent recovery by CalAm. MRWPCA, the Lead Agency for the GWR EIR certified the Final EIR and approved the GWR project in October 2015.

TABLE 2-4
CALAM MONTEREY DISTRICT WATER SUPPLIES WITH PROPOSED MPWSP
(acre-feet per year)

Supply Source	During Replenishment of the Seaside Groundwater Basin		After Replenishment of the Seaside Groundwater Basin	
	Without GWR (9.6 mgd[a] Desalination Plant)	With GWR (6.4 mgd[b] Desalination Plant)	Without GWR (9.6 mgd[a] Desalination Plant)	With GWR (6.4 mgd[b] Desalination Plant)
Carmel River[c]	3,376	3,376	3,376	3,376
Seaside Groundwater Basin[d]	774	774	1,474	1,474
Aquifer Storage and Recovery (ASR)[e]	1,300	1,300	1,300	1,300
Sand City Coastal Desalination Plant[f]	94	94	94	94
Groundwater Replenishment Project (GWR)[g]	0	3,500	0	3,500
MPWSP Desalination Plant Production[h]	10,750	7,167	10,750	7,167
Total Supplies	**16,294**	**16,211**	**16,994**	**16,911**
Service Area Demand (from Table 2-3)	14,275	14,275	14,275	14,275
Supply Available for Other Use (Total Supplies Minus Service Area Demand)	**2,019**	**1,936**	**2,719**	**2,636**

NOTE: mgd = million gallons per day

[a] 9.6 mgd is the rated capacity of the desalination plant CalAm proposes to build for the MPWSP, and is typically used to characterize the size of the plant; operating at full capacity a 9.6 mgd plant would produce 10,750 acre feet of desalinated water per year. (That is, the conversion factor is 893 gallons per day per acre-foot per year, or about 1,120 acre-feet per year per 1 million gallons per day.)

[b] 6.4 mgd is the rated capacity of the desalination plant CalAm proposes to build if the GWR project is successfully implemented. The 6.4 mgd rated capacity is typically used to characterize the size of the smaller plant proposed in conjunction with the GWR water purchase. Operating at full capacity a 6.4 mgd plant would produce 7,167 acre feet per year.

[c] CalAm's recognized right to Carmel River water established in Order 95-10.

[d] CalAm's adjudicated water right in the Seaside Groundwater Basin is 1,474 afy; in-lieu recharge of 700 afy would occur during 25-year Seaside Groundwater Basin replenishment period.

[e] Assumed average annual yield with completion of Phase II of the ASR; Phase I of the ASR is currently in operation, and Phase II is nearing completion.

[f] Quantity shown is CalAm's long-term share of plant production pursuant to agreements between CalAm and the city of Sand City.

[g] The Final EIR for the GWR project was certified and the GWR project approved by the Monterey Regional Water Pollution Control Agency, the lead agency, in October 2015.

[h] Assumes 9.6 mgd and 6.4 mgd desalination plants operating at full capacity.

SOURCE: CalAm, 2016b; Svindland, 2016.

former Fort Ord military base, on the east side of General Jim Moore Boulevard near Eucalyptus Road. ASR water supplies that are extracted from the Seaside Groundwater Basin are disinfected onsite before being conveyed via an existing 16-inch diameter pipeline beneath General Jim More Boulevard to the CalAm distribution system (MPWMD, 2005). In water year 2011, which was wetter than average, 1,117 af of Carmel River water was injected into the groundwater basin. In water year 2012, 132 af was injected; in 2013, 295 af was injected, in 2014, no Carmel River water was injected, and in 2015, 215 af was injected. The estimated average annual yield from the Phase I injection/extraction wells is 920 afy.

The Phase II ASR project has been built and will start running when treatment facilities are completed at the Phase I site. Phase II includes two additional injection/extraction wells (ASR-3 and ASR-4 Wells) at Seaside Middle School, located on the west side of General Jim Moore Boulevard. Together, the ASR-3 and ASR-4 Wells provide the capacity to yield an additional 1,000 afy from the ASR system, resulting in a total capacity of 1,920 afy for Phases I and II combined (Denise Duffy & Associates, 2012). The Phase I and Phase II ASR projects correspond to MPWMD and CalAm's existing State Water Board Permits 20808A and 20808C, which authorize the diversion of up to 2,426 afy for ASR Phase I, and up to 2,900 afy for ASR Phase II (State Water Board, 2007, 2011). Permit conditions establish limits on diversions to the ASR system, including a requirement that minimum mean daily instream flows in the Carmel River be maintained for the protection of fisheries, wildlife, and other instream uses. Because diversions for the ASR system are contingent on maintaining minimum daily instream flows, and precipitation and streamflow can vary substantially from year to year, for the purposes of CalAm's water supply assumptions, the estimated combined long-term average annual yield from ASR is 1,300 afy for the Phase I and Phase II projects (RBF, 2013). In addition to the injection/extraction wells and treatment facilities, the Phase I and Phase II ASR facilities include two pump stations, a backflush percolation basin,[24] and conveyance pipelines.

As part of the MPWSP, CalAm proposes two additional injection/extraction wells, ASR-5 and ASR-6 Wells. The purpose of the proposed ASR-5 and ASR-6 Wells is to increase the injection/extraction capacity for both desalinated product water and Carmel River supplies and to improve system reliability. The proposed ASR-5 and ASR-6 Wells would not increase CalAm's yield from injected Carmel River supplies; consequently, the average annual yield from Carmel River supplies that are diverted to underground storage would remain at 1,300 afy. The proposed MPWSP ASR facilities are described in Chapter 3, Description of the Proposed Project, and evaluated throughout this EIR/EIS.

2.4.4 Sand City Coastal Desalination Plant

The Sand City Coastal Desalination Plant, which began operations in April 2010, is owned by the City of Sand City and operated by CalAm. The plant's total capacity is 300 afy, of which CalAm's long-term share is 94 afy. The balance of the plant's capacity is reserved by Sand City to support its future growth. Sand City is served by CalAm's distribution system, consistent with the MPWMD's allocation program.

2.4.5 Groundwater Replenishment Project

As described in more detail in Chapter 5, Alternatives, CalAm's MPWSP Application includes a variant of the MPWSP that would combine a reduced-capacity desalination plant (6.4 mgd compared to 9.6 mgd under the MPWSP) with the purchase of 3,500 afy of product water from the GWR project, a joint project proposed by Monterey Regional Water Pollution Control Agency (MRWPCA) and MPWMD. The MRWPCA would inject up to 3,500 afy of purified water from a

[24] The backwash percolation basin receives discharges produced during routine backflushing and operation of the ASR injection/extraction wells.

new advanced water treatment plant into the Seaside Groundwater Basin. Under a purchase agreement with the MPWMD, CalAm would later extract the 3,500 afy for delivery to customers.

If CalAm is able to purchase water from the GWR project, the size of its MPWSP Desalination Plant could be reduced. MRWPCA certified the Final EIR for the GWR and approved the project in October 2015. Because of uncertainties pertaining to project timing and cost at the time CalAm submitted its application for the MPWSP, CalAm's project application proposes a 9.6 mgd plant, but also seeks authorization to reduce the size of the proposed plant to provide 6.4 mgd, and to enter into a water purchase agreement if the cost of the GWR water is reasonable. CalAm would then supplement its supplies with water purchased from the GWR project.

On September 15, 2016, the CPUC issued a Decision authorizing CalAm to enter into a Water Purchase Agreement with the MRWPCA and the MPWMD for the purchase of 3,500 afy. The CPUC Decision also authorizes CalAm to build the new Monterey Pipeline and Monterey Pump Station (CPUC, 2016).

2.4.6 Other supplies

2.4.6.1 Table 13 Water

In 1993, CalAm applied to the State Water Board (Application No. 30215A) for a permit authorizing CalAm to divert from the Carmel River water above its existing rights under Order 95-10 and the ASR permits. This additional water is known as Table 13 water. In October 2013, the State Water Board issued water-right Permit 21330 in response to this application. The permit conveys to CalAm the right to divert a maximum of 1,488 af annually from December 1 of each year to May 31 of the succeeding year, subject to prior rights, the adequacy of daily instream flow, and other provisions and requirements.

In MPWSP testimony submitted to the CPUC in February 2013, before the Table 13 permit was issued, CalAm stated that the Table 13 water would be subject to flow criteria similar to criteria that applied to water diversions for the ASR, and that the Table 13 diversions would, therefore, be constrained by the limited timeframe in which they could occur and by the existing production capacity of the wells and treatment plant on the Carmel River. CalAm also noted that, unlike the ASR diversions, Table 13 water could only be used within the Carmel River watershed. Based on its analysis of customer water use in the watershed at times of year when Table 13 water would be available, CalAm estimated that, during wet years, a maximum of 600 afy of Table 13 water could be used. Because Table 13 water would not be available during dry years, CalAm did not assume the availability of Table 13 water for purposes of sizing the proposed plant (Svindland, 2013c). CalAm reiterated this perspective in testimony provided in 2016.

According to quarterly reports posted at CalAm's website under the State Water Board's Cease and Desist Order, CalAm began reporting diversions of Table 13 water with its reporting of monthly water diverted to ASR storage under Permits 2080A and 2080C in October 2015 (reported in Table 2 of the quarterly reports). According to the October 2015 report, CalAm diverted 42.2 af of Table 13 water for use in water year 2015 and diverted a total of 214.7 af to its

four ASR injection wells in Seaside under its ASR permits 2080A and 2080C (CalAm, 2015). According to its April 2016 quarterly report, CalAm diverted 164.2 af of Table 13 water in the first half of water year 2016 (through March 2016), and diverted 647 af of water to storage under its ASR permits (CalAm, 2016c).

2.4.6.2 Malpaso Water Company LLC

In 2015, the State Water Board issued Water Right License 13868A (License 13868A) to Malpaso Water Company, LLC. License 13868A authorizes Malpaso to divert up to 85.6 afy from the Carmel River and to have this water conveyed by CalAm through its water distribution system to property owners that have entered into subscription agreements with Malpaso, for beneficial uses on their properties.[25] License 13868A authorizes use of the diverted water in CalAm's service area in the Carmel River watershed or in the City of Carmel-by-the-Sea. In its decision issuing License 13868A, the State Water Board determined that diversions of water from the Carmel River under the new license for the benefit of Malpaso's Water Use Permit subscribers would not be classified as water diverted by CalAm for new service connections or for increased use of water at existing service connections that are prohibited under terms of the CDO.

Malpaso has since contracted with CalAm for the conveyance of water diverted under License 13868A to Malpaso's Water Use Permit subscribers through CalAm's distribution system, and for the temporary use of the portions of License 13868A that are not used each year by Malpaso Water Company Water Use Permit subscribers to supply water to CalAm.[26]

In August 2015, MPWMD adopted Ordinance 65, which gives Malpaso a water entitlement of 80 afy through the CalAm distribution system. The size of the entitlement reflects anticipated production and conveyance losses compared to 85.6 afy diversion permitted by License 13868A. MPWMD will only issue a water use permit to a property owner after the person has purchased the water and received plan approval (Locke, 2016).

License 13868A thus increases supplies available to the CalAm Service area from 16,294 afy to 16,380 afy (during the Seaside Basin replenishment period, assuming a 9.6 mgd desalination plant, and from 16,994 afy to 17,090 afy after the replenishment period).

2.4.6.3 Rancho Canada Golf Course Retirement

In April 2016, a coalition of conservation organizations[27] announced plans to acquire 140 acres of the Rancho Canada Golf Club, whose lease expires in April 2017. Under the plan, a large portion of the land, which is located along the Carmel River near Palo Corona Regional Park, would ultimately be turned over to the Monterey Peninsula Regional Park District. The Trust for Public Land would acquire and hold the property until summer of 2017, while raising funds that would enable the Trust to convey the property to the park district. The parties expect to finance

[25] MPWMD Ordinance 165.
[26] MPWMD Ordinance 165.
[27] The organizations include the Trust for Public Land, the Monterey Peninsula Regional Park District, the Santa Lucia Conservancy, and Trout Unlimited.

the deal through a variety of sources, including state grants, private donations, and support from CalAm (Monterey County Herald, 2016). As part of the plan, CalAm and the Trust executed a water diversion forbearance agreement in April 2016 to reduce pumping from the Carmel River and retire irrigation of two golf courses at the golf club. That irrigation now uses about 381 afy of Carmel River water. CalAm has agreed to pay the Trust for its forbearance of diversion during the CDO extension period, which will help CalAm offset its unauthorized diversions and help the Trust acquire the property. Because the acquisition plan anticipates converting much of the acquired land to riparian habitat, a substantial portion of water previously used to irrigate the golf courses should remain in the river permanently (CalAm et al., 2016a).

Because the forbearance agreement between CalAm and the Trust is temporary, and future water use at the site is uncertain, this analysis does not assume that this project would necessarily make the offset supply, formerly used for irrigation, available for other future use.

2.5 Other Supply and Demand Considerations

To meet projected system demand along with the other supply sources discussed above, CalAm proposes to build a 9.6 mgd desalination plant. The plant would include six 1.6 mgd reverse osmosis modules and one 1.6 mgd standby module. As noted above in Section 2.3.2, water demand fluctuates over the day, season, and year. Similarly, the availability of some water supplies that would be used along with the proposed desalination plant also varies over the course of the year. For example, while CalAm has a right to an annual quantity of Carmel River water, the river produces more water in the winter and less in the summer. So to provide adequate service, any water system must be sized to ensure it can meet anticipated peak demands, and it is standard engineering practice to do so. Therefore, anticipated monthly operations were analyzed as part of the development of the proposed project (RBF Consulting, 2013). In addition to CalAm service area water demand, plant operations include CalAm's SVGB return water obligation: the volume of water that would be returned to the SVGB based on the percentage of SVGB groundwater that was produced as source water by the subsurface slant wells. SVGB return water is discussed below in Section 2.5.1 and in Section 2.6, Water Rights.

This section also describes other factors that could affect future water demand and supplies in CalAm's Monterey District.

2.5.1 Salinas Valley Groundwater Basin Return Water

MPWSP source water would include some brackish groundwater from the SVGB. As part of the proposed project, CalAm would return to the SVGB a volume of desalinated product water equal to the amount of SVGB groundwater included in the source water. While CalAm's SVGB return water obligation will be based on the amount of fresh water in the source water, in order to consider the effect of the return water for this EIR/EIS, groundwater modeling simulated scenarios with return water obligations representing 0, 3, 6, and 12 percent of the source water (see Section 4.4, Groundwater Resources). The amount of SVGB groundwater included in the source water is expected to decrease over time (CalAm et al., 2016b).

In June 2016, several parties involved in the current proceeding asked the CPUC to approve their proposed "Settlement Agreement on MPWSP Desalination Plant Return Water" (CalAm et al., 2016b). The settlement describes how CalAm would fulfill its annual SVGB return water obligation. As the settlement explains:

- Delivering return water by injecting desalinated water from the proposed project into the SVGB is considered less desirable than delivering return water for beneficial use in the SVGB.
- The Castroville Seawater Intrusion Project (CSIP) may not have sufficient capacity to accommodate all of the MPWSP SVGB return water under some conditions.
- The Castroville Community Services District (CCSD), which provides municipal and domestic water service to the Town of Castroville, currently relies on about 780 afy of SVGB groundwater to meet Castroville's water demands, and increasingly has experienced water supply challenges because the water is getting saltier.
- The CCSD wants to take delivery of a SVGB return water supply to replace all or part of CCSD's current reliance on groundwater from the SVGB.

To fulfill its SVGB return water obligation, CalAm would make return water available for other water suppliers to use instead of pumping groundwater from the SVGB. The return water settlement requires CalAm either to make 800 afy of return water available for delivery to CCSD, assuming they build the 9.6 mgd plant, or to make 690 afy available if they build the 6.4 mgd plant. CCSD's avoided cost – that is, what they would have had to pay to produce enough groundwater to meet demand – will determine the price that CCSD would pay for the return water. If there is any return water left after CCSD takes its share, CalAm would deliver it to the CSIP. The pipeline that would need to be built to convey return water to Castroville is described in Chapter 3, Description of the Proposed Project, and its potential impacts are evaluated in subsequent chapters of this EIR/EIS. See Section 2.6, below, for more on this topic.

2.5.2 Potential Future Changes in Supply

2.5.2.1 Los Padres Reservoir

State Water Board Order 95-10 reduced CalAm's right to divert surface water to storage at Los Padres Reservoir from 3,030 afy to 2,179 afy, because the legal right to divert water to storage is limited by the physical ability to store the water. In a 2006 study, the MPWMD noted that the State Water Board could revisit Order 95-10 and, by applying the same logic, further reduce CalAm's right to divert water to storage based on additional losses in reservoir capacity due to ongoing sedimentation (MPWMD, 2006a). A 2008 bathymetric study by the Watershed Institute at California State University at Monterey Bay determined that the usable storage capacity of the reservoir in 2008 was 1,669 af. Based on the 2008 study, MPWMD estimates that the long-term sedimentation rate of the reservoir is 21 afy and that more than 510 af of replacement supply would likely be needed to offset the lost capacity (MPWMD, 2015b). As noted in Section 2.2.2, MPWMD and CalAm are currently studying the long term options for the Los Padres Dam and Reservoir.

2.5.2.2 Conclusion of Seaside Groundwater Basin Replenishment Period

As discussed in Section 2.2.4, the proposed project assumes the availability of 747 afy of water supply from the Seaside Groundwater Basin. At the conclusion of the 25-year replenishment period, CalAm would have access to its total adjudicated right of 1,474 afy, thus augmenting available supply by 700 afy.

2.5.3 Potential Future Changes in Demand

Several recent and planned projects and actions could serve to reduce or offset demand assumed by CalAm during the planning and sizing of the proposed MPWSP Desalination Plant. Conversely, growth within the Monterey District service area that is consistent with adopted general plans could increase demand beyond that assumed for the proposed project. This section describes other projects and actions that were not explicitly accounted for in CalAm's demand estimates but that could affect future service area demand.

As the price of water changes, customers' behavior may change as well. When water is less expensive, people typically use more of it; when water is more expensive, people typically conserve more. But no one knows how much water will cost in the future, or how the CPUC will structure CalAm's water rates. Also, people in CalAm's Monterey District have a long history of water conservation, and already use very little water compared to the rest of the state. But if the MPWSP comes on line, that would make CalAm's water supply more reliable, and would probably lift the constraints imposed by Order 95-10 and the CDO, which might induce people to use more water, even if that water is also becoming more expensive. Given the number of variables involved, speculating about what effect future water prices might have on behavior is futile.

2.5.3.1 Pacific Grove Local Water Project

The City of Pacific Grove wants to create a new supply of non-potable water. In the first phase of the Pacific Grove Local Water Project, the city will build and operate a 0.25 mgd satellite recycled water treatment plant that would provide up to 125 afy of recycled water primarily to the Pacific Grove Municipal Golf Links and the El Carmelo Cemetery.[28] The recycled water would replace potable supply currently used for these facilities. Pacific Grove certified an EIR on the project in November 2014. In October 2015, the city certified a supplemental EIR on a modified project, and approved the project as modified. The modified project includes a water entitlement for the city from MPWMD for up to 90 afy of the potable water saved by the PGLWP, to be used to serve a portion of Pacific Grove's anticipated buildout water demand (City of Pacific Grove, 2015).

The State Water Board approved Clean Water State Revolving Fund financing for the project in November 2015. The approval includes a condition that prohibits the allocation of potable water saved by the project for new uses until the State Water Board gives consent to use the water for new connections. In January 2016, MPWMD adopted Ordinance No. 168, which establishes an

[28] Subsequent phases of the PGLWP could provide up to 600 afy of recycled water to sites within the cities of Pacific Grove and Monterey and unincorporated areas of Pebble Beach (City of Pacific Grove, 2014).

entitlement for Pacific Grove of 66 afy for consumption from CalAm's distribution system; permanently suspends from use 13 afy, for the benefit of the Carmel River system; and reserves 9 afy for the MPWMD for its exclusive use for allocation to other jurisdictions. MPWMD established the entitlement so that it would be available to Pacific Grove when the State Water Board authorizes use of the saved water for new connections (MPWMD, 2016c; State Water Board 2015). The project is expected to be operational and delivering up to 125 afy by the end of December 2016 (MPWMD, 2016c). Although the MPWMD has issued the City of Pacific Grove a permit to receive potable supply from CalAm's system, when available, and MPWMD has reserved for itself, for future allocation, an entitlement for a portion of the saved water, the combined permits for Pacific Grove and MPWMD associated with this project are less than the amount of potable water currently used for irrigation that the project would offset. So the project should reduce demand when it is operational.

In 2013, CalAm and several other parties asked the CPUC to approve a settlement agreement on plant sizing and operations. The Settling Parties agreed that the Pacific Grove project would be a valuable part of a comprehensive solution to water issues in CalAm's Monterey District when integrated with the MPWSP, the GWR Project, and ASR (CalAm et al., 2013a).

2.5.3.2 Pebble Beach Recycled Water Project Phase II

The Carmel Area Wastewater District-Pebble Beach Community Services District reclamation project provides recycled water to irrigate Del Monte Forest golf courses and other open space areas. Phase I of the project, completed in 1994, offset demand for about 70 percent, or 700 af, of the potable water previously used for this purpose (Sweigert, 2008). Phase II of the project, which was completed in 2009, eliminated the need to mix any potable water with the recycled water; the project now supplies 100 percent of the water used at the area golf courses and is estimated to save approximately 1,000 afy of potable water (Stoldt, 2011). In planning for the MPWSP, CalAm based its current estimate of service area demand on the 10-year average of years 2006 through 2015. Assuming Phase II of the reclamation project became operational midway through 2009, the additional 300 afy demand reduction it achieved would be reflected in demand data for more than half that baseline period; therefore, although additional reductions in service area demand may occur as a result of this project it is expected such reductions would be minor.

2.5.3.3 Non-revenue Water Reduction

The Final EIR for the Coastal Water Project and the Regional Project[29] noted that improvements in CalAm's distribution system could reduce demand by reducing non-revenue water. Non-revenue water, also known as unaccounted-for water, is the difference between a water system's metered production and metered consumption.

[29] As described in Chapter 1 (Section 1.4), CalAm previously proposed the Coastal Water Project to replace existing Carmel River supplies to which CalAm no longer has a recognized legal right pursuant to Order 95-10 (discussed in Section 2.2.2 above). The Regional Project emerged as an alternative to the Coastal Water Project during the environmental evaluation of the Coastal Water Project. The CPUC certified the EIR in 2009 and approved the Regional Project, which would have been jointly implemented, in two phases, by CalAm and the Marina Coast Water District, in 2010. CalAm eventually withdrew its support for the Regional Project due to the inability to resolve issues that arose related to its implementation, and in 2012 proposed the MPWSP as an alternative.

In its 2009 CDO, the State Water Board observed that the industry standard for non-revenue water was 10 percent; that CalAm's non-revenue water was about 12 percent of production; and that the MPWMD had required CalAm to reduce non-revenue water to 7 percent (State Water Board, 2009). The State Water Board concluded that CalAm should be required to reduce its system losses by about 549 afy and should immediately start to reduce the losses. Similarly, in 2009, the CPUC addressed CalAm's acute need to reduce non-revenue water in the Monterey District. The CPUC ordered CalAm to develop and implement a program for reducing unaccounted-for water in its Monterey main system and associated subsystems and, to provide a financial incentive, the CPUC created a penalty/reward program to be calculated based on a 9 percent non-revenue water target (CPUC, 2012). A June 2012 CPUC rate case decision (D.12-06-016) also found that non-revenue water in the Monterey District needed to be reduced.

CalAm has often described the company's efforts to reduce non-revenue water in its Monterey District (Sabolsice, 2012; CalAm et al., 2016a). These efforts include:

- investigating and analyzing main breaks and service leak data and evaluating pressure-control methodologies
- replacing older water mains and service lines in areas shown to be more prone to leaks
- replacing meters
- deploying acoustic leak-detection devices throughout the system
- implementing operational fixes such as pressure reduction

CalAm submits quarterly compliance reports to the State Water Board under the CDO (CalAm, 2011, 2012b, 2013, 2014, 2015.) In those reports, CalAm states that between the 2011 and 2015 water years, the company has reduced system losses by an average of 506 afy, compared to the base year system losses in water year 2009. Further, for the last three years, the reduction in system losses ranged from 752 af in water year 2013 to 919 af in water year 2015, which exceeds the 549 afy target established in the CDO. CalAm notes that the actual components of unaccounted-for water are difficult to identify because unaccounted-for water represents a combination of system leaks and unmetered water use. Savings from system repairs and line replacements and the like would be reflected in CalAm's system demands data for those years, as part of the 10 years of demand data discussed in Section 2.3.1.

CalAm's program to address system losses will continue under the CDO and the CPUC's decisions. While additional reductions in demand can be expected from continuing efforts to address system losses, data are not available to quantify potential additional future savings from such efforts. Over time, the size of additional reductions in system losses will inevitably decrease as CalAm replaces the oldest and most leak-prone lines and implements other efforts to reduce losses.

2.5.3.4 General Plan Buildout

CalAm is not proposing that the MPWSP meet future demands associated with general plan buildout, although the proposed project does include water for some future development (e.g., development of vacant lots of record and development in the Del Monte Forest commensurate

with existing Pebble Beach water entitlements). Phase 2 of the Regional Project[30] included water to meet projected future service area demands; the MPWMD prepared that estimate of future water needs in 2006 based on information obtained from the service area jurisdictions (MPWMD, 2006b). Each jurisdiction provided estimates of the number of residential units and nonresidential square footage that would be developed under buildout of the currently adopted general plan as well as anticipated residential remodels. Because not all jurisdiction submitted estimates for lots of record as a distinct category, that aspect of general plan buildout in the 2006 estimate does not compare to CalAm's current estimate for lots of record. The MPWMD estimated that 4,545 afy would be needed to meet future water demands (MPWMD, 2006b).

Since the 2006 estimate was prepared, the future water needs of four jurisdictions have been revised, reducing the total:[31]

- Monterey County adopted a new general plan that revised their water demand estimates (Monterey County, 2010);
- The City of Pacific Grove testified on the MPWSP in 2013, revising its estimate of water needed to accommodate general plan buildout (Hardgrave, 2013);
- The City of Seaside commented on the April 2015 MPWSP Draft EIR, updating its future water needs, and noting that full buildout of the West Broadway Urban Village Specific Plan would require a net increase of 80 afy of water (City of Seaside, 2015).
- Sand City built the 300-afy Sand City Coastal Desalination Plant. In consideration for the delivery of 300 afy of potable water from this plant to the CalAm system, MPWMD Ordinance 132 establishes a water entitlement of 206 afy from the CalAm system for Sand City, separate from the city's current water allocation, and indicates that the remaining 94 afy will be permanently added to CalAm's system (as shown above in Table 2-4). The estimated future demand for Sand City is therefore revised to reflect that 206 afy of the city's future demand will be offset by supply from the city's desalination plant (which is not included in the supplies assumed for the MPWSP in Table 2-4).

With these revisions, future demand would total 3,526 afy. **Table 2-5** shows the MPWMD's 2006 future demand estimates, with and without the four revisions. In addition, Pacific Grove may reduce its future demand estimate by 66 afy because of the Pacific Grove Local Water Project (see Section 2.5.3.1). However, the city has not submitted a formal revision to its demand estimate since the 2013 revision noted above.

30 Refer to Chapter 1 for more information on the Regional Project.

31 The EIR prepared for the *Monterey County General Plan* provides two estimates of future water demand for the Greater Monterey Peninsula: one for the general plan planning horizon, which extends to 2030, and one for complete buildout under the general plan, which the EIR projected would occur in 2092. The estimate assumed in this analysis (1,005 afy) is for the 2030 planning horizon. Total buildout demand under the general plan is much higher (4,439 afy, not including unincorporated Carmel and Del Monte Forest, for which buildout estimates are not provided). Because the general plan EIR estimate of demand used a substantially higher per-capita water use rate than is currently assumed, and projected a higher population level than is currently assumed by the Association of Monterey Bay Area Governments, there is reason to believe that the 2092 buildout projection overstates both future population and water demand; therefore, the shorter term planning horizon was considered a more reasonable estimate for this analysis.

TABLE 2-5
FUTURE WATER DEMAND – SERVICE AREA JURISDICTIONS
(acre-feet per year)

Jurisdiction	Future Supply Needs (2006 Estimate)[a]	Future Supply Needs (Revised Estimate)
City of Carmel	288	288[b]
City of Del Rey Oaks	48	48
City of Monterey	705	705
City of Pacific Grove	1,264	500[c,d]
City of Sand City	386	180[e]
City of Seaside	582	662[f]
Monterey County (Unincorporated)	1,135	1,005[b,g,h]
Monterey Peninsula Airport District	138	138
Total	**4,545**	**3,526**

NOTES:
[a] Based on the MPWMD's "Estimated Long-Term Water Needs by Jurisdiction Based on General Plan Build-out in Acre-Feet," Exhibit 1-C of Special Meeting/Board Workshop Agenda Item 1, MPWMD Board of Directors Packet, May 18, 2006b.
[b] State Water Board License 13868A, issued in 2015, authorizes Malpaso Water Company to divert 85.6 afy from the Carmel River for delivery to property owners in CalAm's service area in the Carmel River watershed or the City of Carmel-by-the-Sea who have entered into subscription agreements with Malpaso Water Company. Provision of this water supply could therefore reduce system demand in the City of Carmel-by-the-Sea and unincorporated Monterey County by a total of 86.6 afy if the water available from Malpaso Water Company is fully subscribed.
[c] Revised based on testimony submitted to the CPUC by the City of Pacific Grove revising its 2006 estimate as shown.
[d] Future supply needs by the City of Pacific Grove may be reduced by an additional 66 afy in recognition of the 66 afy water entitlement established for the city by MPWMD in consideration of its Pacific Grove Local Water Project (see Section 2.5.3.1).
[e] Sand City's 300 afy desalination plant, which was constructed after preparation of the 2006 estimate of future supply needs, provides Sand City a water entitlement of 206 acre-feet (pursuant to MPMWD Ordinance 132) to meet future demand in the city, thereby offsetting the original demand estimate by 206 afy. (Because this portion of the Sand City plant's production is not included in the supplies assumed by CalAm, shown in Table 2-4, it is also not shown here, in order to avoid double counting demand that will be met by another source.)
[f] Revised based on the City of Seaside comment on April 2015 Draft EIR and attached water supply assessment indicating that full buildout of the West Broadway Urban Village Specific Plan would require a net increase of 80 afy of water (City of Seaside, 2015; Schaaf & Wheeler, 2008); the specific plan was adopted in 2010.
[g] Revised based on the Final EIR prepared for the 2010 *Monterey County General Plan*; the estimate shown is for the unincorporated county areas served by the Carmel River and Seaside Basin aquifer in the general plan horizon year (2030), rather than general plan buildout (which is not expected until 2092).
[h] The estimate provided in the 2010 General Plan Final EIR for the unincorporated county area served by the Carmel River and Seaside Basin aquifer includes 492 acre feet for the Highway 68/Airport affordable housing overlay, as well as supply for Greater Monterey Peninsula area (316 acre feet), the Carmel Mid-Valley affordable housing overlay (75 acre feet), Cachagua (partial) (5 acre feet), Carmel Valley (60 acre feet), unincorporated Carmel (37 acre feet), and Del Monte Forest (20 acre feet).

SOURCES: MPWMD, 2006b; Monterey County, 2010; Hardgrave, 2013, City of Seaside, 2015; Shaaf & Wheeler, 2008.

As discussed in Section 2.3, the proposed MPWSP would provide water supply to meet a projected total service area demand of about 14,275 afy, which is 2,005 afy more than CalAm's estimate of current annual demand, 12,270 afy. Part of this 2,005 afy is intended to serve existing service area customers in the hospitality industry under improved economic conditions, and part is intended to serve future development of lots of record and development associated with Pebble Beach water entitlements. Analysis presented in Section 6.3 indicates CalAm might have overestimated the amount needed to serve existing hospitality industry customers under improved economic conditions (500 afy) by about 250 afy and that the other 250 afy designated for hospitality industry recovery may therefore be available to serve future growth. Assuming that revised estimate for the hospitality industry, about 1,755 afy of the 14,275 afy would be available

to serve additional development in the CalAm service area. Although the project proposes to meet a narrower range of future development components than was assumed for Phase 2 of the Regional Project, the amount of water provided by the proposed project to serve additional development represents about half of the revised estimate of future service area demands. As the revised estimate in Table 2-5 indicates, the proposed project would provide 1,471 afy less than would be needed to meet water demand associated with general plan buildout (3,526 afy) and the other future water demand considered in the 2006 analysis.

The MPWMD, the Monterey Peninsula Regional Water Authority, Monterey County, and CalAm plan to determine an accurate estimate of the added capacity needed to meet the General Plan buildout projections for communities served by CalAm. The findings from this process, which will be undertaken separately from the current A. 12-04-019 proceeding, will be reported to the CPUC either within a subsequent rate design phase of A. 12-04-019 or as part of the general rate case process (CalAm et al., 2013b).

2.5.4 Assumptions about the Allocation of MPWSP Water

As discussed in Section 2.3, CalAm proposes to size the MPWSP Desalination Plant to provide, along with other sources, sufficient supply to meet service area demand of 14,275 afy. This amount is 2,005 afy more than the 12,270 afy existing service area demand (shown in Table 2-3), and without Seaside Basin replenishment, it would be 2,705 afy more than existing demand. In addition to meeting existing service area demand, CalAm proposes sizing the plant to meet demand associated with existing Pebble Beach water entitlements, estimated demand associated with the development of vacant legal lots of record and, if the economy improves, demand from increased water use at existing hospitality businesses. While such increases in water demand can reasonably be expected, estimating future water demand necessarily entails the use of assumptions about demand factors that cannot be predicted with absolute certainty. (As discussed in Section 2.3.3, MPWMD's review of the factors included in CalAm's estimate produced somewhat different results. For example, MPWMD's review indicated that supply needed for future development of vacant lots of record may be underestimated and the supply needed for economic recovery of the hospitality industry may be overestimated.) Moreover, under past and current allocation programs, once a given supply has been allocated to a jurisdiction, whether or not the jurisdiction reserves its allocation for specific uses and at specific levels that CalAm assumed for project sizing would be up to the jurisdiction. It is the jurisdiction's responsibility to determine, subject to applicable plans, policies, laws, and regulations, whether or not to approve a new or intensified water use within its boundaries. In addition, with other supply sources the MPWSP would provide total supply of 16,294 during the Seaside Basin replenishment and 16,994 after the replenishment period, as shown in Table 2-4. Available supply after 14,275 afy of anticipated demand was met may need to be returned to the Salinas Valley Groundwater Basin, or may be available for growth within service area jurisdictions, depending on the return water obligation.

One of the MPWMD's key functions is to allocate water supply within its boundaries. The water supply that the proposed project would provide, along with other existing and planned supplies, would continue to be subject to MPWMD's allocation program. Although MPWMD has not yet

begun to address allocation of the proposed MPWSP supply, this analysis assumes that the same considerations that informed the past and current allocations will be relevant to the allocation of the MPWSP supply. This EIR/EIS assumes that water provided by the proposed project will be allocated to meet existing demand and that any water left over would be allocated in general proportion to projected growth in the CalAm service area jurisdictions.

2.6 Water Rights

The topic of water rights is not one typically addressed in an EIR/EIS. It is a legal matter that is rarely relevant to the question of whether a proposed project being evaluated under CEQA or NEPA will generate impacts on the environment. Here, however, the issue of water rights is addressed as one of project feasibility.

The proposed project (MPSWP) and Alternative 5a are designed to take supply water from the ocean via underground slant wells that draw water from the earth underneath the ocean. The wells would be located at the western edge of the Salinas Valley Groundwater Basin (SVGB, or the "Basin"), a large basin that extends approximately 100 miles between Monterey Bay (in the northwest) to the Salinas River headwaters (in the southeast). Details concerning the Basin conditions and stratigraphy (geologic conditions) are set forth in Section 4.4, Groundwater Resources, of this EIR/EIS. Particularly because the project supply wells could draw some water from the Basin, concerns have been expressed as to whether CalAm does or will hold legal rights to use the water that would be taken by the slant wells, treated at the desalination plant and supplied to CalAm customers located outside the Basin.

The CPUC is not the arbiter of whether CalAm possesses water rights for the project and nothing in this EIR/EIS should be construed as the CPUC's opinion regarding such rights, except to the extent that the CPUC must determine whether there is a sufficient degree of likelihood that CalAm will possess rights to the water that would supply the desalination plant such that the proposed project can be deemed to be feasible. Indeed, no government agency will formally grant water rights to CalAm for the proposed project. In California, groundwater other than subterranean streams and underflow of surface water is regulated through common law (court cases) rather than through the issuance of permits by government bodies. The SVGB is not an adjudicated groundwater basin, so use of the groundwater in the Basin is not subject to existing court decree, written agreements or oversight by an impartial watermaster.[32] There are three relevant types of groundwater rights: (1) overlying rights whereby those who own land atop the Basin may make reasonable use of groundwater on such land; (2) prescriptive rights whereby a water user has acquired another's rights to use water via an open, adverse and sustained use under a claim of right that such user would otherwise not be entitled to; and (3) appropriative rights whereby the groundwater may be used outside the Basin or for municipal purposes. While CalAm owns 46 acres of land (the proposed desalination plant location) overlying the Basin, that land would not support sufficient water for the

[32] An adjudicated groundwater basin is one in which a court has determined the amount of groundwater that each party may extract per year, often based upon studies of the basin and a determination of the safe yield of the basin to sustain it in the long-term. Adjudicated groundwater basins have court-appointed watermasters, who oversee basin operations.

project and would not enable CalAm to use the water beyond the property that it owns. CalAm has no prescriptive groundwater rights in the Basin. Thus, CalAm would take any Basin water for the project via appropriative rights, which are junior to existing appropriations and to overlying users. If the proposed project is approved and any dispute arises as to whether or not CalAm possesses legal water rights, such dispute likely would be resolved through court action. Naturally, however, if CalAm does not have the right to the supply water for the proposed project, the proposed project could not proceed and would thus prove infeasible. This section examines whether, based upon the evidence currently available, the CPUC could conclude that there is a sufficient degree of likelihood that CalAm will possess rights to the water that would supply the desalination plant such that the proposed project can be deemed to be feasible.

Numerous court decisions have enunciated that an EIR for a large scale land use development project must analyze the reasonably foreseeable impacts of supplying water to the project. Such an EIR should show a reasonable likelihood that water will be available from an identified source and must evaluate environmental impacts from likely future water sources to serve the proposed project. Those cases arise in a different context than the MPWSP. Those cases are concerned with whether there will be enough water to support construction of land use projects and to supply the operational needs of the project occupants for drinking, cooking, bathing, waste water, industrial processes, irrigation, etc. Quite conversely, the MPWSP is itself a water supply project, aimed primarily at creating the water supply to replace current water supplies to which CalAm is not legally entitled. From a physical perspective, it is more than reasonably foreseeable that sufficient water is available to supply feedwater for the MPWSP desalination plant. There is knowledge as to where the water will come from and certainty that a sufficient quantity of water will be available. The physical effects of MPWSP's withdrawal of water are fully analyzed in Section 4.4, Groundwater Resources, of this EIR/EIS.

The primary purpose in requiring an EIR to identify the water supply source for a project and to analyze the effects of supplying water to the project is to ensure that land use development projects that will use water are not built without consideration of water supply.[33] Unlike with land use development projects, here, if CalAm did not possess legal rights to use the feedwater for the MPWSP desalination plant, then the desalination plant simply could not operate and the project would not go forward. That is why water rights factors in as a key project feasibility issue.

[33] Numerous court decisions have enunciated that an EIR for a large scale land use development project must analyze the reasonably foreseeable impacts of supplying water to the project. Such an EIR should show a reasonable likelihood that water will be available from an identified source and must evaluate environmental impacts from likely future water sources to serve the proposed project. Those cases arise in a different context than the MPWSP. Those cases are concerned with whether there will be enough water to support construction of land use projects and to supply the operational needs of the project occupants for drinking, cooking, bathing, waste water, industrial processes, irrigation, etc. Quite conversely, the MPWSP is itself a water supply project, aimed primarily at creating the water supply to replace current water supplies to which CalAm is not legally entitled. From a physical perspective, it is more than reasonably foreseeable that sufficient water is available to supply feedwater for the MPWSP desalination plant. There is knowledge as to where the water will come from and certainty that a sufficient quantity of water will be available. The physical effects of MPWSP's withdrawal of water are fully analyzed in Section 4.4, Groundwater Resources, of this EIR/EIS.

2.6.1 State Water Resources Control Board Report

Questions have been posed in the CPUC's proceeding as to whether CalAm could demonstrate water rights to the MPWSP supply water. Furthermore, as noted above, CalAm's right to the project feedwater is a basic feasibility issue for the project. The SWRCB is the state agency authorized to exercise adjudicatory and regulatory functions in the areas of water rights, water quality and safe and reliable drinking water. By letter dated September 26, 2012, the CPUC asked that the SWRCB assist the CPUC and issue an opinion as to whether CalAm has a credible legal claim to the supply water for the MPWSP. The SWRCB carefully considered the then-available facts and evidence concerning the MPWSP, prepared a draft report on water rights, circulated that draft for public comments and ultimately issued its July 31, 2013, Final Review of California American Water Company's Monterey Peninsula Water Supply Project (Report). The Report is attached to this EIR as **Appendix B2**.

First off, the Report confirms that "Cal-Am needs no groundwater right or other water right to extract seawater from Monterey Bay." Report at 33. Thus, CalAm does not need a water right for the vast majority of the MPWSP supply water because most of the supply water for the 9.6 mgd desalination plant with supply wells at the proposed CEMEX location is projected to be seawater from the Monterey Bay. No water right need be secured for the seawater element of the MPWSP supply water.

Next, as to water that may be derived from the Basin itself rather than from the ocean, the Report explains (as discussed above) that there are three types of groundwater rights: (1) overlying rights for those who own land above the Basin; (2) prescriptive rights for those who have adversely established a pattern of use of Basin water; and (3) appropriative rights. CalAm would need an appropriative groundwater right to retrieve and export water from the Basin. The Report sets forth the view of the SWRCB as to the set of circumstances that must exist in order for CalAm to have the requisite appropriative rights to support the project. Essentially, if the extraction of otherwise unusable Basin groundwater will not harm lawful water users and any fresh water extracted can be returned to the Basin without injury to existing legal water users, then CalAm would have rights to the portion of feedwater that comes from the Basin because the MPWSP product water that contains such Basin water would be "developed water."

Developed water is water that was not previously available to other legal users and that is added to the supply by the developer through artificial means as a new water source. "The key principle of developed water is if no lawful water user is injured, the effort of an individual to capture water that would otherwise be unused should be legally recognized." Report at 37. Due to long-term seawater intrusion (where the seawater has moved inland) in the Basin, large areas of the Basin groundwater are impaired as to drinking and agricultural uses. The geographic areas from which the project supply wells could draw water inland of the sea are indeed intruded by seawater. (See Section 4.4, Groundwater Resources) "Since this groundwater is reportedly impaired, it is unlikely that this water is, or will be put to beneficial use." Report at 15. In fact, in response to concerns over seawater intrusion and historic overdraft in the Basin, the County adopted Ordinance No. 3709, which precludes the installation of new groundwater wells and

prohibits groundwater pumping between mean sea level and 250 feet below mean sea level in certain areas.

The Report concludes that the withdrawal for creating developed water is appropriate so long as no injury is incurred by existing legal water users of the Basin. Setting up the test to discern whether CalAm possesses water rights for the proposed project, the Report states:

> [I]n developing a new water source Cal-Am must establish no other legal user of water is injured in the process. Even if Cal-Am pumps water unsuitable to support beneficial uses, the water could not be considered developed water unless users who pump from areas that could be affected by Cal-Am's MPWSP are protected from harm.
>
> Cal-Am proposes a replacement program for the MPWSP water that can be attributed to fresh water supplies or sources in the Basin. If Cal-Am can show all users are uninjured because they are made whole by the replacement water supply and method of replacement, export of the desalinated source water would be permissible and qualify as developed water. In the future, this developed water would continue to be available for export even if there are additional users in the Basin. Developed waters are available for use by the party who develops them, subject to the "no injury" standard discussed previously.

Report at 38. The Report specifies three categories of foreseeable injuries that conceivably could be experienced by overlying water users within the area of influence of the MPWSP supply wells: "(1) a reduction in the overall availability of fresh water due to possible incidental extraction by the MWPSP; (2) a reduction in water quality in those wells in a localized area within the capture zone; and, (3) a reduction in groundwater elevations requiring users to expend additional pumping energy to extract water from the Basin." Report at 45. Each of these possible forms of injury is examined below.

State water policy favors enhancement of beneficial uses of water. Specifically, Article X, section 2 of the California Constitution requires "that the water resources of the State be put to beneficial use to the fullest extent to which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented." In addition, Water Code sections 12946 and 12947 proclaim it state policy to economically convert saline water to fresh water, stating, "Desalination technology is now feasible to help provide significant new water supplies from seawater, brackish water and reclaimed water."

In light of these legal requirements, the Report discusses the physical solution doctrine of water rights law, which could come into play if the MPWSP would beneficially develop water, but would in so doing cause injury absent one or more mechanisms to address and ameliorate such injury. In such a circumstance, physical solutions could be employed by CalAm to alleviate the harm effected by the MPWSP and make whole the injured water rights holders. The types of physical solutions would be dictated by the actual harm caused by the MPWSP, but could include such actions as providing replacement water supplies or funding improvements or additional pumping costs needed to ensure that the senior water users in the Basin remain in the same position as they were prior to construction and implementation of the MPWSP. The Report stated that, "Under the physical solution doctrine, although the Basin continues to be in a condition of overdraft, to maximize beneficial use of the state's waters Cal-Am may be allowed to pump a

mixture of seawater, brackish water, and fresh water and export the desalinated water to non-overlying parcels." Report at 42. As discussed above, the key criteria are that existing water users will not be injured by CalAm's use of Basin groundwater and that any fresh water component withdrawn by the MPWSP supply wells will be returned to the Basin in a productive way.

Specifically on the topic of the return options for any fresh water drawn from the Basin by the MPWSP, the Report provides:

> Cal-Am could use one of several possible options to replace any fresh water it extracts from the Basin. Cal-Am could return the water to the aquifer through injection wells, percolation basins, or through the CSIP. Cal-Am would need to determine which of these methods would be the most feasible, and would in fact, ensure no harm to existing legal users. The feasibility analysis would depend on site-specific geologic conditions at reinjection well locations and at the percolation areas. These studies need to be described and supported in detail before Cal-Am can claim an appropriative right to export surplus developed water from the Basin.

Report at 39. The Report emphasizes more than once that any injection wells or percolation basins for the purpose of returning fresh water to the Basin would need to be located where the underlying aquifer does not contain degraded water so as to avoid a waste of beneficial water.

> In summary, to appropriate groundwater from the Basin, the burden is on Cal-Am to show no injury to other users. Key factors will be the following: (1) how much fresh water Cal-Am is extracting as a proportion of the total pumped amount and how much desalinated water is thus available for export as developed water; (2) whether pumping affects the water table level in existing users' wells and whether Cal-Am can avoid injury that would otherwise result from any lowering of water levels through monetary compensation or paying for upgraded wells; (3) whether pumping affects water quality to users' wells within the capture zone and whether Cal-Am can avoid or compensate for water quality impacts; (4) how Cal-Am should return any fresh water it extracts to the Basin to prevent injury to others; and (5) how groundwater rights might be affected in the future if the proportion of fresh and seawater changes, both in the larger Basin area and the immediate area around Cal-Am's wells.

Report at 46. The Report concluded that further data were needed in order to apply the facts and evidence to the criteria set forth in the Report for determining CalAm's water rights. The Report noted that information was needed pertaining to the depth of the project supply slant wells, the hydrogeologic conditions of the site and the area, updated modeling to evaluate the impacts of the project, aquifer testing, and studies to help determine how extracted fresh water would be replaced. Most of these studies and activities have been undertaken and the results are described and reflected in Section 4.4, Groundwater Resources. CalAm has supplied details about its proposed supply wells and return water proposal. Test borings have helped to characterize the hydrogeologic framework within which the project would operate. Groundwater modeling has been conducted. CalAm also obtained approval to construct a test well on the CEMEX site. That well is in place (and core samples taken during the drilling of the well confirmed the assumptions about hydrogeologic conditions) and test pumping is occurring. Test slant well pumping and monitoring data was used to refine the aquifer properties represented in the revised version of the groundwater model to test the model's reliability for simulating drawdown from slant well

pumping. Once the test well results are complete, the modeling will be verified and will be re-run as warranted. Thus, the full panoply of evidence concerning the project's relationship to groundwater (and thus water rights) may continue to evolve and be refined throughout the CPUC proceeding. This preliminary analysis of water rights is based upon detailed and extensive groundwater aquifer characterization and groundwater modeling that has been undertaken by the EIR/EIS preparers to assess the effects of the project on Basin groundwater users.[34]

2.6.2 Project Water Rights

As noted above, CalAm extraction of seawater does not require water rights. The question presented is thus whether Basin water rights holders would be injured or harmed by virtue of withdrawal from the Basin of any amount of water that is not purely seawater. The extensive groundwater modeling conducted for this EIR/EIS and discussed in detail in the Groundwater Resources section and in **Appendix E2** is different from that conducted for the 2015 Draft EIR on the MPWSP. As explained in Chapter 4.4, Groundwater Resources, the modeling is specifically targeted to isolating the change in groundwater levels that would be generated by the MPWSP. This modeling, however, cannot project the amount of Basin water that is expected to be drawn into the supply wells. Due to decades of seawater intrusion in the area, any Basin water extracted by the supply wells would be brackish water, which is a combination of ocean water and water that originated from the inland aquifers of the Basin. CalAm proposes as part of the MPWSP to return to the Basin (in the manner further described below) the fresh water portion of the brackish source water. In other words, although the groundwater modeling indicates that the Basin water that could be withdrawn by the supply wells would be brackish and thus not fresh, potable water, the MPWSP would return to the Basin desalinated product water in the amount of the fresh water molecules that make up the withdrawn brackish Basin water. In that the quantity of such fresh water component of the supply water is not currently known, the modeling and the EIR/EIS analysis assess a range of return water between 0 and 12 percent of the source water.

The concept of significant effect under CEQA is not necessarily synonymous with harm or injury to water rights holders. In other words, physical change caused by the project might not rise to the level of a significant environmental impact under CEQA, but could still cause some harm or injury to a Basin water user (for instance, if the cost to a Basin water rights holder of withdrawing water were to rise even though the environment would not suffer significant impacts). Here, though, the Groundwater Resources section of this EIR/EIS strives to and does in fact effectively and meaningfully analyze two of the three precise concepts of "harm" or "injury" set forth in the Report. These two criteria are reduction in the availability of fresh water and reduction of water quality. In addition, the analysis in the Groundwater Resources section (based upon the groundwater modeling) provides an answer to the third concept of injury set forth in the Report, that of a reduction in groundwater levels that requires users to spend additional funds to extract water.

[34] The EIR/EIS preparers have also had the benefit of working closely with, and receiving input from, the Hydrogeologic Working Group (HWG) that was formed as a result of the proposed settlement in the CPUC proceeding on the MPWSP. The HWG is composed of experts representing myriad parties in the CPUC proceeding with diverse interests related to the Basin, including but not limited to the Monterey County Farm Bureau, the Salinas Valley Growers Association and CalAm. The EIR/EIS preparers obtained feedback from the HWG as to the groundwater aquifer characterization and the groundwater modeling assumptions.

The impact evaluation in the Groundwater Resources section of this EIR/EIS applied the following relevant thresholds of significance, determining that the project would generate a significant adverse environmental impact if any of the following would occur :

- Substantial depletion of groundwater supplies or substantial interference with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned land uses for which permits have been granted).

- Extraction from the subsurface slant wells were to lower groundwater levels in the Dune Sand Aquifer or the 180-Foot Equivalent Aquifer such that nearby municipal or private groundwater production wells were to experience a substantial reduction in well yield or physical damage due to exposure of well pumps or screens.

- Extraction from the subsurface slant wells would substantially deplete groundwater in the SVGB such that there would be a net deficit in aquifer volume.

- Extraction from the subsurface slant wells would adversely affect groundwater quality by exacerbating seawater intrusion in the SVGB.

- Violation of any water quality standards or degradation of water quality.

- Extraction from the subsurface slant wells would adversely affect groundwater quality by exacerbating seawater intrusion in the Basin.

Applying the thresholds stated above, the analysis concludes that the MPWSP would not result in a significant impact to groundwater resources. It would not reduce, or affect at all, the availability of fresh water (only brackish water from the Basin is projected to be drawn into the MPWSP supply); would not lower groundwater levels in the Basin so as to affect the water supply of any groundwater users or substantially deplete aquifer volume; and would not alter or reduce groundwater quality.

Due to the long-degraded condition of water in the Basin within the radius of influence (the area within which the project could affect groundwater levels), there are few active wells that could potentially be affected by the project. As discussed in detail in the Section 4.4, Groundwater Resources, there are only three active supply wells with well screens across the Dune Sand Aquifer or 180-Foot Equivalent Aquifer within the area where the project may cause groundwater levels to decrease by more than 1 foot but no more than 5 feet.[35] These three wells are located at the Monterey Peninsula Landfill and are used for dust control. Given that the well pumps and the screens are set at least tens of feet below the existing groundwater level, a decrease in the levels of less than 5 feet would not cause injury to this overlying user. There are four active wells with well screens in the 400-Foot Aquifer. These include the South Well on the CEMEX property, a well on land owned by Ag Land Trust that is used to supply water for dust control, and two private wells

[35] This is based upon an assumption that no return water (0 percent) is supplied to the Basin, and thus represents a worst case, conservative scenario given that, as discussed in detail in the Groundwater Resources section, the more water that is returned to the basin as envisioned by the proposed project, the less total impact there would be on the groundwater levels.

with unknown owners. Due to the brackish to saline quality of the groundwater within the 400-Foot Aquifer, these wells would not be expected to supply drinking water. The Groundwater Resources section concludes as to all active wells that a water level decline between 1 and 5 feet would not expose well screens, cause damage, or reduce yield in the groundwater supply wells that could be influenced by the MPWSP. All in all, the project was determined not to result in a significant impact in terms of groundwater supplies either quantitatively or qualitatively. Thus, it appears reasonable to conclude that the MPWSP would not result in harm or injury to the water rights of legal users of water in the Basin in terms of fresh water supply or water quality, two of the Report's three injury criteria relative to the development of legal water rights.

Turning to the third of the three injury criteria set forth in the Report – increased pumping costs – as noted above, the water levels in seven potentially active wells could drop by somewhere between 1 and 5 feet, thus requiring marginally more energy to extract the water from those wells. As a physical solution to ensure that those well owners continue to enjoy the same measure of water rights as they do prior to MPWSP implementation and thus are not injured, CalAm could compensate the well owners for any increased pumping costs causally tied to the MPWSP. Assuming that CalAm were to compensate the owner of these wells for any increased pumping costs sustained due to the MPWSP, the slant wells' operation would not cause injury under the Report's third injury criteria.

Furthermore, CalAm has proposed a mitigation measure (set forth in Section 4.4, Groundwater Resources as Mitigation Measure 4.4-3) to further ensure that Basin groundwater users are not injured. Working with the Monterey County Water Resources Agency, CalAm would fund the installation of monitoring wells to expand the County's network of groundwater monitoring wells so as to be better able to monitor on an on-going basis the effect of the project slant wells on groundwater within the radius of influence. If the monitoring efforts were to demonstrate that the project were affecting any existing neighboring active wells, CalAm would coordinate with the affected well owner and take both interim and long-term steps to avoid harm (possibly including improving well efficiency, providing a replacement water supply and/or compensating the well owner for increased costs).

In light of the foregoing, it seems reasonable to conclude that the MPWSP would not cause harm or injury to Basin water rights holders such that CalAm would possess the right to withdraw water from the Basin to produce "developed water" for beneficial use and under the physical solution doctrine.

The entirety of the geographical area of the Basin that would be affected by the project contains brackish water rather than fresh water. Based on the groundwater modeling and as discussed in the Groundwater Resources section, while the project may actually improve the Basin's seawater intrusion issue by slowing the seawater interface line from advancing more inland, the project is not forecasted to draw any fresh water through the MPWSP source water supply wells over the life of the project. If indeed no fresh water is withdrawn by the project, then no physical solution in the form of return to the Basin of fresh water (or other off-setting mechanism to alleviate the harm) would be required in order for CalAm to secure and maintain water rights for the project feedwater. If the water in the Basin were to become fresher in the future such that the MPWSP supply wells

were drawing fresh water from the Basin, then a physical solution (such as the proposed return component of the project, discussed below) would be needed in order for CalAm to maintain rights to the Basin water for the project.[36]

In any event, the proposed project does include a return water component. CalAm proposes to return to the Basin the percentage of supply water that is determined to have originated from the inland aquifers of the Basin, i.e., the fresh water component of the water that is extracted by the slant wells as if the brackish water could be segregated between its ocean (seawater) and inland (fresh water) elements. Not only would this plan further ensure that there is no injury to Basin groundwater users, but the Basin and its groundwater users could be benefitted by the return of fresh water to the seawater-intruded Basin.

The Report stated in this regard:

> Cal-Am could use one or more of several possible methods to replace any fresh water it extracts from the Basin. Cal-Am could return the water to the aquifer through injection wells, percolation basins, or through the CSIP. Cal-Am would need to determine which of those methods would be the most feasible, and would in fact, ensure no harm to existing legal users. The feasibility analysis would depend on site-specific geologic conditions at reinjection well locations and at the percolation areas. These studies need to be described and supported in detail before Cal-Am can claim an appropriative right to export surplus developed water from the Basin.

Report at 39. The Report further provides that percolation basins or injection wells would need to be located "where the underlying aquifer does not contain degraded water" (Report at 45); "it would not be appropriate to inject or percolate desalinated water in [the] intruded area, as the water would essentially be wasted." Report at 32.

CalAm has worked with other stake-holders to develop its current proposal for returning water to the Basin. The construct proposed was not an identified option at the time that the SWRCB Report was prepared and thus was not specifically addressed therein, but appears to advance the goals stated in the Report for returning water to the Basin. CalAm proposes to deliver fully desalinated water to end users for use in lieu of existing groundwater production from the SVGB. The two points of delivery would be (i) to the Castroville Community Services District (CCSD) to supply water for municipal purposes (e.g., typical drinking, bathing, sewer, watering and other non-agricultural water uses) and (ii) to the Castroville Seawater Intrusion Project (CSIP) pond or directly into the reclaimed water CSIP pipe for use by the agricultural users that obtain water through CSIP. Under these return water locales, the clean desalinated water would be provided for municipal or agricultural use (respectively) in lieu of pumping Basin water in an amount equal to the quantity of return water. The return water would be supplied as follows:

[36] The Report addresses the effects on the water rights equation of possible changed conditions in the Basin over time. See Report at pages 43-45. Appropriate physical solutions in the event that the MPWSP wells draw a higher proportion of fresh water in the future may vary depending on whether the higher amount of fresh water results from the MPWSP itself or is due to other causes. The Report states that if increased availability of fresh water were not attributed to the MPWSP and the fresh water extractions could not be returned to the Basin in sufficient quantities, CalAm may have to limit extractions or otherwise modify its project so as to eliminate harm to Basin water users.

1. At the start-up of the MPWSP, 175 acre feet of return water would be provided to CSIP.
2. Each year, 805 acre feet of return water will be provided to CCSD, even if the calculated amount of Basin water withdrawn by MPWSP is less than that amount.
3. To the extent that the calculated amount of Basin water withdrawn by MPWSP exceeds 805 acre feet, that excess amount will be provided to CSIP.

Water is expected to be returned between May and November of the same calendar year as it is withdrawn (see Chapter 3, operating table) such that the senior overlying and prescriptive users would not suffer harm from loss of water. As examined by the groundwater modeling and explained in the Groundwater Resources section, this proposed return water plan would improve groundwater conditions in the 400-Foot Aquifer underlying the CSIP, CCSD and adjacent areas because water levels would increase as a result of in-lieu groundwater recharge, and would benefit each of the aquifers by either reducing the area of influence of the MPWSP or by increasing groundwater levels in other areas. Since this return option would essentially put the Basin in a "no net loss" position in terms of fresh water quantity and would benefit legal water users by providing fresh water for beneficial use in lieu of Basin pumping, it appears consistent with the Report and enhances the preliminary conclusion that CalAm would likely possess water rights for the project.

2.6.3 Effect of Monterey County Water Resources Agency Act

In 1990, the State Legislature enacted the Monterey County Water Resources Agency Act (the Agency Act), creating the MCWRA as a flood control and water agency. The jurisdictional boundaries of the MCWRA are coterminous with County of Monterey boundaries. Per the Agency Act, MCWRA is charged with preventing the waste or diminution of the water supply in its territory by, among other things, controlling groundwater extractions and prohibiting groundwater exportation from the Salinas River Groundwater Basin. When it enacted the Agency Act, the California State Legislature expressly provided that: "no groundwater from that basin may be exported for any use outside the basin, except that use of water from the basin on any part of Fort Ord shall not be deemed such an export. If any export of water from the basin is attempted, [MCWRA] may obtain from the superior court, and the court shall grant, injunctive relief prohibiting that export of groundwater." Agency Act at section 21. The Agency Act further empowers the MCWRA to prevent extraction of groundwater from particular areas of the Basin if needed to protect groundwater supplies. Accordingly, MCWRA adopted Ordinance 3709 (the "Ordinance") prohibiting groundwater extraction within the northern Salinas Valley between the depths of 0 mean sea level and -250 mean sea level.

This section evaluates whether it appears at least preliminarily that the proposed project would be consistent with the Agency Act (including the Ordinance) such that the application of the Agency Act would not undermine the project's right to withdraw and supply water and thus, impair the feasibility of the project from water rights and legal feasibility perspectives.

First, the State Water Resources Control Board Report, discussed in detail above, raises the question as to whether the Agency Act would apply to all of the proposed project groundwater

extractions given the location of some screens of the slant wells outside the jurisdictional boundaries of the County:

> The applicability of the Agency Act to the MPWSP is unclear. As currently proposed, the project would use slanted wells and have screened intervals located seaward of the beach. Although the project would serve areas within the territory of the MPWSP, the points of diversion for these proposed wells may be located outside the territory of MCWRA as defined by the Agency Act.

Report at 39. The Agency Act's effect on project feasibility may be minimized by virtue of its application only to water drawn through well screens located within County jurisdiction. Assuming, however, that the Agency Act would apply to the entire project, the Report (while acknowledging that the SWRCB is not the body charged with interpreting the Agency Act) opines that the project would appear consistent with the Agency Act and the Ordinance given that the project would return to the Basin any quantity of fresh water withdrawn from the Basin. The Report states:

> Based on the State Water Board's analysis, as reflected in the Report, the Project as proposed would return any incidentally extracted usable groundwater to the Basin. The only water that would be available for export is a new supply, or developed water. Accordingly, it does not appear that the Agency Act or the Ordinance operate to prohibit the Project. The State Water Board is not the agency responsible for interpreting the Agency Act or MRWCA's ordinances. It should be recognized, however, that to the extent the language of the Agency Act and ordinance permit, they should be interpreted consistent with policy of article X, section 2 of the California Constitution [declaring that the waters of the state shall be put to maximum beneficial use], including the physical solution doctrine . . .

Report at 40. Therefore, it appears at least preliminary reasonable to conclude that the project would be consistent with the Agency Act and the Ordinance such that those laws would not impair project feasibility.

2.6.4 Effect of Annexation Agreement

In 1996, the MCWRA, the MCWD, the City of Marina, the owners of Armstrong Ranch and then owners of the CEMEX property (RMC Lonestar) entered into an *Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands* ("Annexation Agreement").[37] The agreement established a framework for management of groundwater from the Basin and included terms and conditions for the annexation of lands (including the Armstrong Ranch and CEMEX properties) to MCWRA's benefit assessment zones as a financing mechanism to fund groundwater resource protection and reduction of seawater intrusion (MCWD, et al. 1996).

Under the Annexation Agreement, MCWD's authority to withdraw potable groundwater from the Basin would be limited to 3,020 afy year until such time as a plan for development of a long-term potable water supply capable of mitigating seawater intrusion was developed and implemented. If

[37] The MRWPCA was not a party to the Annexation Agreement. However, an Addendum attached as Exhibit G to the Annexation Agreement provides that MRWPCA could later elect to become a party to that Agreement.

and when the Armstrong Ranch property were annexed to MCWD's benefit assessment zones, non-agricultural use of Basin groundwater withdrawn from that property would be capped at 920 afy. If and when the CEMEX property was annexed to MCWD's benefit assessment zones, withdrawal of groundwater from that property would be capped at 500 afy.

The Armstrong Ranch property is not included as part of the proposed MPWSP. However, at the CEMEX property (where CEMEX currently conducts sand mining operations), CalAm proposes construction of subsurface slant wells extending offshore under Monterey Bay and other infrastructure to support the MPWSP Seawater Intake System. Consequently, this section addresses the status of annexation of the CEMEX property pursuant to the Annexation Agreement to determine its effect on MPWSP feasibility and the rights of CalAm to withdraw water from wells drilled on the CEMEX property. Specifically, this section examines: (1) whether annexation of the CEMEX property has occurred, triggering the 500 afy groundwater withdrawal limitation; and (2) whether that withdrawal limitation (if effective) would apply to water withdrawn by the MPWSP slant wells, such that CalAm would lack the right to pump the requisite water for the project and operation of the MPWSP would become infeasible.

Section 7.3 of the Annexation Agreement provides that "Lonestar Property annexation to the Zones will not take effect until the Lonestar Property has been approved for prior or concurrent annexation into MCWD" (MCWD, et al. 1996). Annexation of the property, now owned by CEMEX, requires compliance with CEQA and discretionary approval by the Monterey County Local Agency Formation Commission (LAFCO). At its June 12, 2012 regular board meeting, the MCWD Board adopted a resolution (No. 2012-42) to initiate CEQA studies and submit to LAFCO an application for the annexation of the CEMEX property into the MCWD. However, at its November 30, 2012 meeting, counsel for the MCWD Board reported that no application to LAFCO for annexation of the CEMEX property had been submitted (MCWD, 2012). At that same meeting, the MCWD Board adopted Resolution 2012-88, which requires a super majority vote of 4 of 5 MCWD Board members or a majority of the voters within the 1975 jurisdictional boundaries of MCWD to approve any future land annexation (MCWD, 2012).

The MCWD Board considered the status of this possible annexation at its February 17, 2015 meeting. As of that date, no requisite CEQA document for annexation of the CEMEX property had been started and no LAFCO annexation application for the CEMEX property had been submitted. The Agenda Transmittal from the MCWD staff for the February 17, 2015 Board meeting identified several issues and hurdles that would impair MCWD's ability to move forward with annexation of the CEMEX property. Specifically, based upon meetings with the LAFCO Executive Director and CEMEX officials, the MCWD staff reported that annexation would also require approval of a sphere of influence amendment by LAFCO; such an amendment would need to be consistent with the City of Marina General Plan, which does not envision development of the CEMEX property in a manner that would require MCWD water service; CEMEX does not envision developing its land so as to justify provision of urban-level services by MCWD; and CEMEX would not be willing to pay to the County the fee for annexation to MCWD. In light of these facts, MCWD staff concluded that submitting the required application to LAFCO would be "costly and potentially not achievable in the end." (MCWD, 2012). As of the end of 2016,

MCWD has taken no further action to pursue annexation of the CEMEX property. MCWD's 2015 Urban Water Management Plan, adopted June 6, 2016, notes that the Annexation Agreement would not take effect until the CEMEX property were annexed. Therefore, with respect to the CEMEX property, the Annexation Agreement is not yet effective and the 500 afy groundwater withdrawal limitation does not apply to the proposed MPWSP. The annexation does not appear likely to occur in the foreseeable future, and thus there is no current indication that the Annexation Agreement poses a feasibility issue to the project's use of water.

Moreover, even if annexation of the CEMEX property to MCWD's benefit assessment zones were to take place in the future, triggering the 500 afy groundwater withdrawal limitation, it appears that operation of the MPWSP could still be feasible. CalAm could conceivably construct and employ an injection well on the CEMEX property to return 500 afy to that property such that the MPWSP would have a net-zero effect on groundwater from the CEMEX land and conceivably could operate regardless of whether the 500 afy groundwater withdrawal limitation were imposed at some point in the future. In addition, any other proposed return to the SVGB, such as the return water program proposed as part of the MPWSP, would keep the Basin whole, serving the purpose of the Annexation Agreement as set forth in Section 1.1 of that Agreement by reducing seawater intrusion and protecting the groundwater resources of the Basin, thus arguably being consistent with the Annexation Agreement.

References – Water Demand, Supplies, and Water Rights

California American Water (CalAm), 2006. *Monterey District Urban Water Management and Water Shortage Contingency Plan 2006-2010*, February 2006 Revision, 2006.

California American Water (CalAm), 2007. Existing System Description: Monterey District California American Water, Western Region, provided in response to EIR data request April 4, 2007.

California American Water (CalAm), 2011. Letter report to Barbara Evoy, Division Chief, Division of Water Rights, State Water Resources Control Board, Re: SWRCB Order WR 2009-0060, 4th Quarterly Report for the 2010-2011 Water Year Addressing Operations for the Period of July 1, 2011 to September 30, 2011 (Table 5, 12 Month Running Average of Unaccounted For Water), October 10, 2011. Available: http://www.amwater.com/caaw/customer-service/rates-information/monterey-district.html.

California American Water (CalAm), 2012a. Before the Public Utilities Commission of the State of California, A.12-04-019, Application of California-American Water Company (U210W) for Approval of the Monterey Peninsula Water Supply Project and Authorization to Recover All Present and Future Costs in Rates, Filed April 23, 2012.

California American Water (CalAm), 2012b. Letter report to Barbara Evoy, Division Chief, Division of Water Rights, State Water Resources Control Board, Re: SWRCB Order WR 2009-0060, 4th Quarterly Report for the 2011-2012 Water Year Addressing Operations for the Period of July 1, 2012 to September 30, 2012 (Table 5, 12 Month Running Average of

Unaccounted For Water), October 29, 2012. Available: http://www.amwater.com/caaw/customer-service/rates-information/monterey-district.html.

California American Water (CalAm), 2013. Letter report to Barbara Evoy, Division Chief, Division of Water Rights, State Water Resources Control Board, Re: SWRCB Order WR 2009-0060, 4th Quarterly Report for the 2012-2013 Water Year Addressing Operations for the Period of July 1, 2013 to September 30, 2013 (Table 5, 12 Month Running Average of Unaccounted For Water), October 17, 2013. Available: http://www.amwater.com/caaw/customer-service/rates-information/monterey-district.html.

California American Water (CalAm), 2014. Letter report to Barbara Evoy, Division Chief, Division of Water Rights, State Water Resources Control Board, Re: SWRCB Order WR 2009-0060, 4th Quarterly Report for the 2013-2014 Water Year Addressing Operations for the Period of July 1, 2014 to September 30, 2014 (Table 5, 12 Month Running Average of Unaccounted For Water), October 22, 2014. Available: http://www.amwater.com/caaw/customer-service/rates-information/monterey-district.html.

California American Water (CalAm), 2015. Letter report to Barbara Evoy, Division Chief, Division of Water Rights, SWRCB, Re: SWRCB Order WR 2009-0060, 4th Quarterly Report for the 2014-2015 Water Year Addressing Operations for the Period of July 1, 2015 to September 30, 2015, October 20, 2015. http://www.amwater.com/caaw/customer-service/rates-information/monterey-district.html.

California American Water (CalAm), 2016a. Before the Public Utilities Commission of the State of California, A. 12-04-019, Amended Application of California-American Water Company (U210W), Appendix H (Updated), Monterey Peninsula Water Supply Project Project Description March 2016, p.1. March 14, 2016.

California American Water (CalAm), 2016b, System Demands worksheet, MPWSP Demand-Supply Table for EIR EIS Update and Testimony-2016-03-08, provided to ESA April 25, 2016.

California American Water (CalAm), 2016c. Letter report from Eric Sabolsice, General Manager, Central Division, CalAm, to Barbra Evoy, Division Chief, Division of Water Rights, SWRCB, Re: SWRCB Order WR 2009-0060, 2nd Quarterly Report for the 2015-2016 Water Year Addressing Operations for the Period of January 1, 2016 to March 31, 2016, April 28, 2016.

California American Water (CalAm) et al., 2013a. Settlement Agreement on Plant Size and Level of Operation, Entered by the Following Parties: California American Water Company, Citizens for Public Water, City of Pacific Grove, Coalition of Peninsula Businesses, Division of Ratepayer Advocates, Monterey Peninsula Regional Water Authority, Monterey Peninsula Water Management District, Monterey Regional Water Pollution Control Agency, and Planning and Conservation League Foundation, Before the Public Utilities Commission of the State of California, Application 12-04-019, July 31, 2013.

California American Water (CalAm) et al., 2013b. Settlement Agreement of California American Water Company, Citizens for Public Water, City of Pacific Grove, Coalition of Peninsula Businesses, County of Monterey, Division of Ratepayer Advocates, Landwatch Monterey County, Monterey County Farm Bureau, Monterey County Water Resources Agency, Monterey Peninsula Regional Water Authority, Monterey Peninsula Water Management

District, Monterey Regional Water Pollution Control Agency, Planning and Conservation League Foundation, Salinas Valley Water Coalition, Sierra Club, and Surfrider Foundation, Before the Public Utilities Commission of the State of California, Application 12-04-019, July 31, 2013.

California-American Water Company, Monterey Peninsula Regional Water Authority, Monterey Peninsula Water Management District, Pebble Beach Company, City of Pacific Grove (CalAm, et al.), 2016a. Amended Application for Order Modifying State Water Board Order WR 2009-0060 (Cease and Desist Order), In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company; Cease and Desist Order WR 2009-0060.

California-American Water Company, Coalition of Peninsula Businesses, LandWatch Monterey County, Monterey County Farm Bureau, Monterey County Water Resources Agency, Monterey Peninsula Regional Water Authority, Monterey Peninsula Water Management District, Monterey Peninsula Water Pollution Control Agency, Planning and Conservation League, Salinas Valley Water Coalition, (CalAm, et al.), 2016b. Settlement Agreement on MPWSP Desalination Plant Return Water, Execution Copy. Included as Exhibit A of Joint Motion for Approval of Settlement Agreement on Desalination Plant Return Water, Before the Public Utilities Commission of the State of California, Application 12-04-019, dated June 14, 2016.

California Coastal Conservancy, National Marine Fisheries Service, California American Water, et al., Welcome to the San Clemente Dam Removal & Carmel River Reroute Project, and Who We Are; http://www.sanclementedamremoval.org/. Accessed May 12, 2016.

California Public Utilities Commission (CPUC), 2012. Decision 12-06-016 June 7, 2012, Application 10-07-007 (Filed July 1, 2010), Application 11-09-016. Decision Adopting the 2011, 2012, 2013, and 2014 Revenue Requirement for California American Water Company, Date of Issuance June 14, 2012.

California Public Utilities Commission (CPUC), 2016. Decision 16-09-021, Decision on California-American Water Company's Application for Approval of the Monterey Peninsula Supply Project Specifically in Regards to Phase 2, September 15, 2016.

City of Pacific Grove, 2014. *Pacific Grove Local Water Project Draft Environmental Impact Report,* prepared by Brezack and Associates Planning, September 16, 2014.

City of Pacific Grove, 2015. *Pacific Grove Local Water Project Final Supplemental Environmental Impact Report,* SCH No. 2014021058, prepared by Brezack and Associates Planning, September 2015.

City of Seaside, 2015. Letter to Andrew Barnsdale, CPUC, from Diana Ingersoll, Deputy City Manager-Resource Management Services, City of Seaside, RE: Comments on the DEIR for the Monterey Peninsula Water Supply Project, June 20, 2015.

Denise Duffy & Associates, Inc., 2012. *Addendum to the Phase I ASR Environmental Impact Report/ Environmental Assessment and Initial Study Checklist for Full Implementation of Aquifer Storage and Recovery (ASR) Water Project 2*. Prepared for Monterey Peninsula Water Management District. April 11, 2012.

Hardgrave, Sarah, 2013. Direct Testimony of Sarah Hardgrave, Before the Public Utilities Commission of the State of California, Application No. 12-04-019 (Filed April 23, 2012), February 22, 2013.Monterey County, 2010. Monterey County General Plan Final Environmental Impact Report, SCH# 2007121001, March 2010.

Locke, Stephanie, 2016. As cited in *The Carmel Pine Cone*, Eastwood water hitting market, p. 8A, April 15, 2016.

Marina Coast Water District (MCWD), 2012. Meeting Minutes for Special Board Meeting, November 30, 2012.

Marina Coast Water District, City of Marina, Monterey County Water Resources Agency (MCWD et al.), 1996. *Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands,* March 1996.

Monterey County, 2010. Monterey County General Plan Final Environmental Impact Report, SCH# 2007121001, March 2010.

Monterey County Superior Court, 2006. California American Water, Plaintiff, vs. City of Seaside, City of Monterey, et al., Case No. M66343, Decision. Filed March 27, 2006.

Monterey County Superior Court, 2007. California American Water, Plaintiff, vs. City of Seaside, et al., Case No. M66343, Amended Decision, February 9, 2007.

Monterey County Herald, 2016. Land deal could close Rancho Canada Golf Club, 140 acres to go to park district, by Carly Mayberry, April 26, 2016.

Monterey Peninsula Water Management District (MPWMD), 1996. Rule 33, Jurisdictional and Reserve Allocations, last amended (by Ordinance 86) December 12, 1996.

Monterey Peninsula Water Management District (MPWMD), 2005. Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Plan and Integrated Coastal Watershed Management Plan, Seaside Groundwater Basin Aquifer Storage and Recovery (ASR) Phase I, July 5, 2005.

Monterey Peninsula Water Management District (MPWMD), 2006a. *Draft Technical Memorandum 2006-02, Existing Water Needs of Cal-Am Customers within MPWMD Boundaries and Non Cal-Am Producers within the Seaside Groundwater Basin Adjusted for Weather Conditions During Water Years 1996 through 2006*, prepared by Darby W. Fuerst, PH 05-H-1658, Senior Hydrologist, October 2006.

Monterey Peninsula Water Management District (MPWMD), 2006b. Estimated Long-Term Water Needs by Jurisdiction Based on General Plan Build-out in Acre-Feet, Exhibit 1-C of Special Meeting/Board Workshop Agenda Item 1, MPWMD Board of Directors Packet, May 18, 2006. Available online at: www.mpwmd.dst.ca.us/asd/board/boardpacket/2006/20060518/01/item1_exh1c.htm.

Monterey Peninsula Water Management District (MPWMD), 2013a. Monthly Allocation Report: Entitlements, for Nov 27, 2012 thru December 31, 2012, Agenda Item 24, Board of Directors Regular Meeting, January 30, 2013a. Available online at:

www.mpwmd.dst.ca.us/asd/board/boardpacket/2013/20130130/0130agenda.htm. Accessed September 25, 2013.

Monterey Peninsula Water Management District (MPWMD), 2013b. Special Meeting Board of Directors, Action Item 3, Exhibit 3-B, MPWMD Analysis of Hospitality Bounce-Back, February 12, 2013.

Monterey Peninsula Water Management District (MPWMD), 2013c. Special Meeting Board of Directors, Action Item 3, Exhibit 3-A, Overview of Legal Lots of Record Documentation, February 12, 2013.

Monterey Peninsula Water Management District (MPWMD), 2013d. Late Filed Exhibits Responsive to Evidentiary Hearing December 02, 2013, Application A. 12-04-019, Late Filed Exhibit WD-3, December 11, 2013

Monterey Peninsula Water Management District (MPWMD), 2015a. Agenda Item 17, Consider Entering into an Agreement with California American Water for Los Padres Dam Long-Term Plan, Board of Directors Regular Meeting, August 17, 2015.

Monterey Peninsula Water Management District (MPWMD), 2015b. Letter to Ken Lewis, CPUC, from David J. Stoldt, General Manager, MPWMD, Subject: MPWMD Comments on Draft EIR for Monterey Peninsula Water Supply Project, CPUC Application A. 12-04-019; Subsequent EIR to SCH# 2006101004, September 14, 2015.

Monterey Peninsula Water Management District (MPWMD), 2015c. Agenda Item 2, Consider Approval of 2015 Memorandum of Agreement for Releases from San Clemente Reservoir among California American Water, California Department of Fish and Wildlife, and Monterey Peninsula Water Management District, Board of Directors Regular Meeting, May 18, 2015.

Monterey Peninsula Water Management District (MPWMD), 2016a. Agenda Item 2, Consider Authorization of Contract for Preparation of Los Padres Fish Passage Study, Board of Directors Regular Meeting, April 18, 2016.

Monterey Peninsula Water Management District (MPWMD), 2016b. Monthly Allocation Report: Entitlements, Reported in Acre-Feet For the month of May 2016, Agenda Item 25-B, Board of Directors Regular Meeting, June 20, 2016. Available online at: http://www.mpwmd.net/asd/board/boardpacket/2016/20160620/June-20-Agenda.htm. Accessed June 28, 2016.

Monterey Peninsula Water Management District (MPWMD), 2016c. Ordinance No. 168, An Ordinance of the Board of Directors of the Monterey Peninsula Water Management District Amending Rule 11,and Adding Rule 23.9 to Establish a Water Entitlement for the City of Pacific Grove, Adopted by the Board January 27, 2016.

Monterey Regional Water Pollution Control Agency, Monterey Peninsula Water Management District, and California American Water (MRWPCA, MPWMD, and CalAm), 2012. *MRWPCA-MPWMD-CalAm Groundwater Replenishment Project Planning Term Sheet and Memorandum of Understanding to Negotiate in Good Faith*, April 20, 2012, included as Attachment 6 of the Direct Testimony of Richard C. Svindland, April 23, 2012.

RBF Consulting, 2013. Memorandum from Paul Findley to Richard Svindland, California American Water, Subject: Recommended Capacity for the Monterey Peninsula Water Supply Project (MPWSP) Desalination Plant, January 7, 2013.

Sabolsice, Eric J., 2012. Direct Testimony of Eric J. Sabolsice, Before the Public Utilities Commission of the State of California, Application No. 12-04-019 (Filed April 23, 2012), April 23, 2012.

Schaaf & Wheeler, 2008. Draft Water Supply Assessment of West Broadway Urban Village Specific Plan, Prepared for City of Seaside (Attachment 3 of City of Seaside, 2015), July 31, 2008.

Seaside Groundwater Basin Watermaster (Watermaster), 2007. Seaside Basin Groundwater Account Production Allocation: Seaside Basin Groundwater Account Per Amended Decision, Dated February 9, 2007. Available online at: http://www.seasidebasinwatermaster.org/sbwmARC.html.

Seaside Groundwater Basin Watermaster (Watermaster), 2009. Letter to Mr. Andrew Barnsdale [California Public Utilities Commission], Comments on Coastal Water Project Draft Environmental Impact Report, March 24, 2009.

Seaside Groundwater Basin Watermaster (Watermaster), 2015. Agenda Item IX.A. Memorandum to Board of Directors from Laura Dadiw, Declaration of NO Replenishment Water Available for Water Year 2016, Special Board Meeting, Wednesday, December 2, 2015. Available online at: http://www.seasidebasinwatermaster.org/sbwmARC.html.

Seaside Groundwater Basin Watermaster and California American Water (Watermaster and CalAm), 2014. Amendment No. 1 to the Memorandum of Understanding between the Seaside Basin Watermaster and California American Water Dated December 3, 2008; signed by the Seaside Basin Watermaster April 25, 2014 and by CalAm June 6, 2014.

State Water Resources Control Board (State Water Board), 1995. Order No. WR 95-10: Order on Four Complaints Files Against The California-American Water Company, Carmel River, Monterey County. July 6, 1995.

State Water Resources Control Board (State Water Board), 2007. Division of Water Rights, Permit for Diversion and Use of Water, Amended Permit 20808A, Application 27614A of: Monterey Peninsula Water Management District and California American Water Company, November 30, 2007.

State Water Resources Control Board (State Water Board), 2009. Order WR 2009-0060, In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company, Cease and Desist Order. Adopted October 20, 2009.

State Water Resources Control Board (State Water Board), 2011. Division of Water Rights, Amended Permit for Diversion and Use of Water, Application 27614C, Permit 20808C, of: Monterey Peninsula Water Management District and California American Water Company, November 30, 2011.

State Water Resources Control Board (State Water Board), 2015. Resolution No. 2015-0070: Approving Water Recycling Funding Program (WRFP) and Clean Water State Revolving

Fund (CWSRF) Financing for the City of Pacific Grove Local Water Project (Project). Adopted November 17, 2015.

Stoldt, David J., General Manager, 2011. Monterey Peninsula Water Management District, letter to Mike Novo, Director of Planning, Monterey County Resource Management Agency, Re: Pebble Beach Company Water Entitlement, December 14, 2011. Available online at: http://www.co.monterey.ca.us/planning/major/Pebble%20Beach%20Company/DEIR_Comment_Letters/COMMENTb_LETOo_PLN100138_MPWMD_12-14-2011.pdf.

Stoldt, David J., 2013. Direct Testimony of David J. Stoldt, Before the Public Utilities Commission of the State of California, Application No. 12-04-019, February 22, 2013.

Svindland, Richard C., 2012. Direct Testimony of Richard C. Svindland, Before the Public Utilities Commission of the State of California, Application No. 12-04- (Filed April 23, 2012), April 23, 2012.

Svindland, Richard C., 2013a. Supplemental Testimony of Richard C. Svindland, Before the Public Utilities Commission of the State of California, Application No. 12-04-019 (Filed April 23, 2012), January 11, 2013.

Svindland, Richard C., 2013b. Testimony *in* Reporter's Transcript, Evidentiary Hearing, Before the Public Utilities Commission of the State of California, Administrative Law Judge Angela K. Minkin presiding, Application 12-04-019, December 2, 2013.

Svindland, Richard C., 2013c. Rebuttal Testimony of Richard C. Svindland, Before the Public Utilities Commission of the State of California, A.12-04-019 (Filed April 23, 2012), March 8, 2013.

Svindland, Richard C., 2016. Supplemental Testimony of Richard C. Svindland: ERRATA, Before the Public Utilities Commission of the State of California, Application No. 12-04-019 (Filed April 23, 2012), April 14, 2016, plus Attachment 1, Demand Scenarios.

Sweigert, Dave, 2008. Testimony of David Sweigert, Pebble Beach Company, presented in: State of California Environmental Protection Agency State Water Resources Control Board Division of Water Rights, In the Matter of: Public Hearing to Determine Whether to Adopt a Draft Cease and Desist Order Against California American Water, Hearing Phase 2, Volume II, Thursday, July 24, 2008.

WSC, 2012. *Final 2010 Urban Water Management Plan for the Central Division – Monterey County District*, Prepared for California-American Water Company, Prepared under the Responsible Charge of Jeffery M. Szytel, California R.C.E. No. 63004. September 7, 2012.

CHAPTER 3
Description of the Proposed Project

3.1 Introduction

This chapter describes the components of the Monterey Peninsula Water Supply Project (MPWSP) proposed by the California-American Water Company (CalAm). The information in this chapter is intended to provide the reader with an understanding of the construction and operational aspects of CalAm's proposed project[1] and provide a common basis for the analysis of environmental impacts in Chapter 4, Environmental Setting (Affected Environment), Impacts, and Mitigation Measures.

[1] The term "proposed project" is used when referring to CalAm's proposed MPWSP. This term is used when discussing impacts resulting from implementation of all federal, state, and local permits, approvals, and authorizations. The term "proposed action," more commonly used in NEPA documents, refers specifically to MBNMS' four federal proposed actions described in Section 1.3.2.

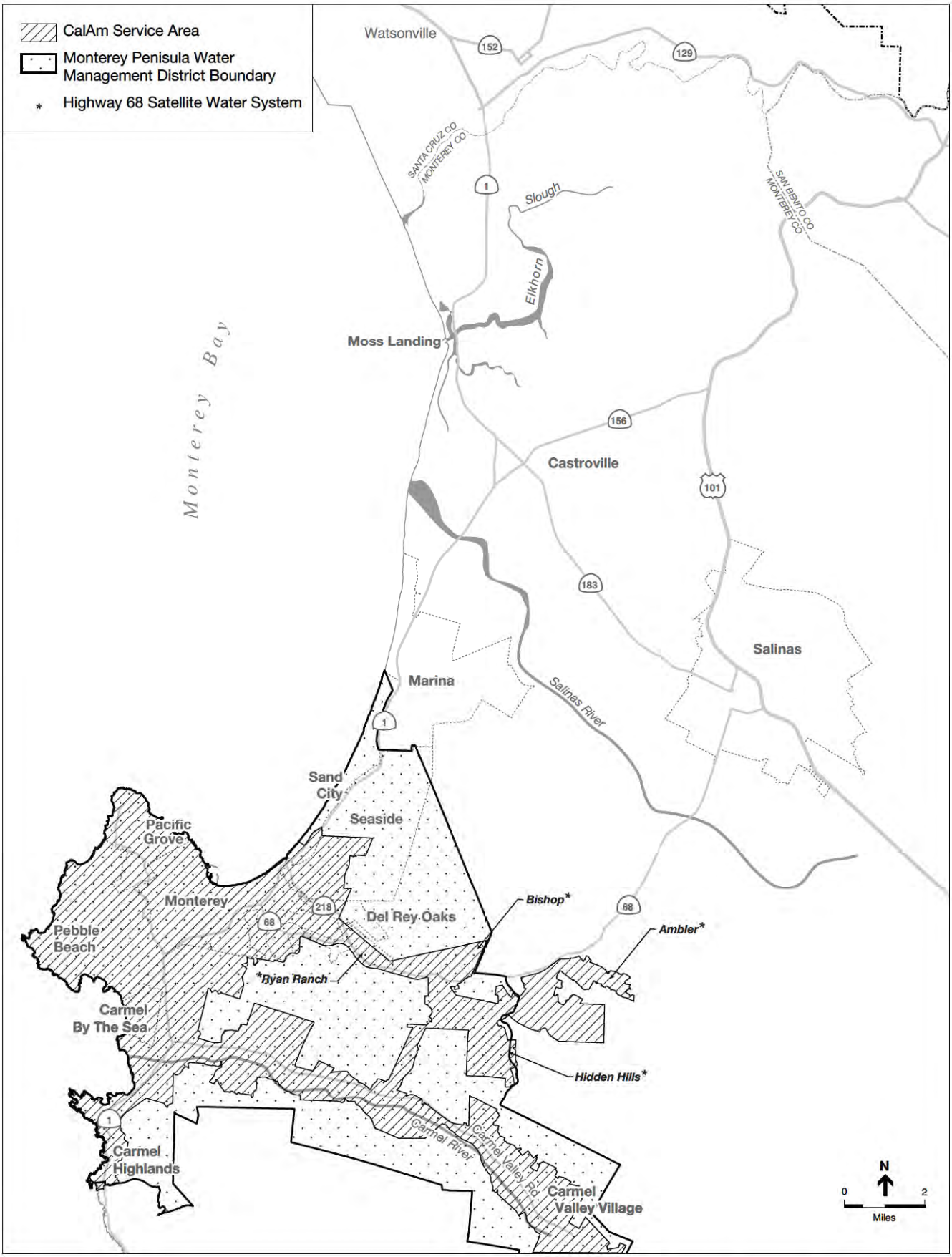
CalAm is proposing the MPWSP to develop a new water supply for CalAm's Monterey District service area (Monterey District) (see **Figure 3-1**). Section 2.2 of Chapter 2, Water Demand, Supplies, and Water Rights describes the legal decisions and Section 2.3 describes the project demand assumptions that are the basis for the MPWSP's capacity.

The project area extends approximately 18 miles, from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**). The MPWSP would include construction of a desalination plant located in unincorporated Monterey County on Charles Benson Road, northeast of the City of Marina and up to nine new subsurface slant wells at the CEMEX active mining area in the northern area of the City of Marina to produce approximately 10,750 afy. The proposed MPWSP Desalination Plant would have a rated capacity of 9.6 million gallons per day (mgd).

The proposed MPWSP would also include improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system facilities, which would enable CalAm to inject desalinated product water into the groundwater basin for subsequent extraction and distribution to customers. The proposed improvements to the ASR system would also increase the efficiency and long-term reliability of the ASR system for injecting Carmel River water into the groundwater basin. The proposed project also includes pump stations, storage tanks, and about 21 miles of water conveyance pipelines.

To inform the final design of the subsurface slant wells and the MPWSP Desalination Plant treatment system, and to collect geologic and hydrogeologic data needed for Federal, state, regional, and local permits for the full-scale project, CalAm built a test slant well at the same location as the seawater intake system for the proposed Project. CalAm currently is operating the test slant well as a pilot program to collect data. Construction of the test slant well and operation of the pilot program was covered under separate environmental review.[2] The test slant well is permitted to operate until February 2018 and it is not part of the proposed Project being evaluated in this EIR/EIS. If the MPWSP with subsurface slant wells at CEMEX is not approved and implemented, the test well would be removed. However, if the proposed subsurface slant wells at CEMEX are ultimately approved as part of the proposed Project, CalAm would convert the test slant well into a permanent well and operate it as part of the seawater intake system. The conversion and long-term operation of the well has not been covered under previous approvals and is evaluated in this EIR/EIS as part of the proposed project.

[2] In October 2014, Monterey Bay National Marine Sanctuary finished its NEPA review of the construction of the test slant well and the operation of the pilot program. In November 2014, the City of Marina and the California Coastal Commission completed their CEQA review.



SOURCE: ESA, 2013

205335.01 Monterey Peninsula Water Supply Project

Figure 3-1

CalAm Monterey District Service Area

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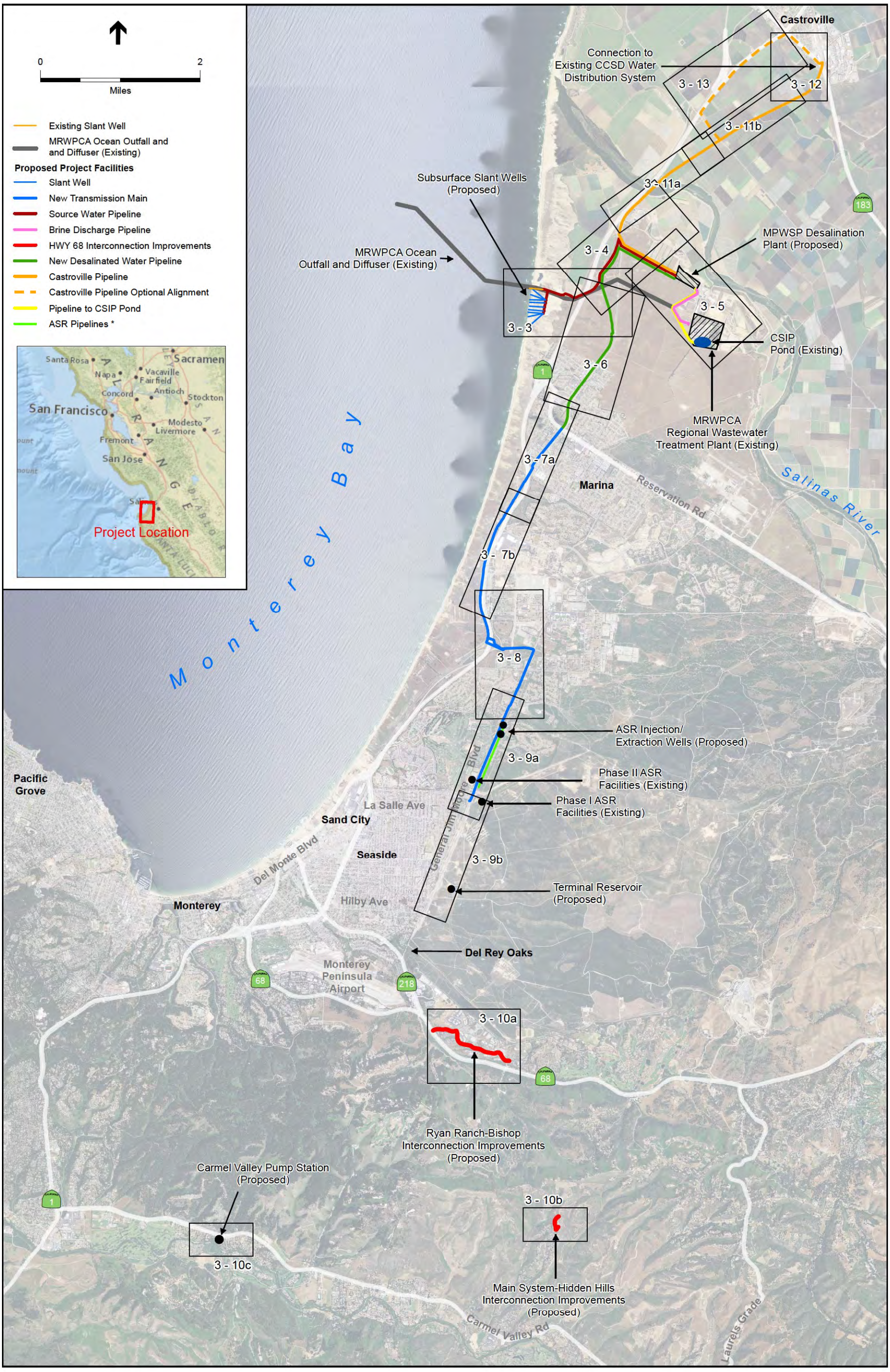

NOTE:
*The ASR Pipelines are the ASR Conveyance Pipeline, the ASR Pump-to-Waste Pipeline, and the ASR Recirculation Pipeline. See Figure 3-9a for the individual pipeline alignments.

SOURCE: ESA, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 3-2

Monterey Peninsula Water Supply Project Overview and Index Map

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3.2 Project Components

The MPWSP comprises the following facilities:

- The seawater intake system, which would consist of 10 subsurface slant wells[3] (eight active and two on standby) extending offshore into submerged lands of Monterey Bay National Marine Sanctuary (MBNMS), and a Source Water Pipeline
- A 9.6 mgd desalination plant and related facilities, including pretreatment, reverse osmosis (RO), and post-treatment systems; backwash supply and filtered water equalization tanks; chemical feed and storage facilities; brine storage and conveyance facilities; and other associated non-process facilities
- Desalinated water conveyance facilities including pipelines, a stand-alone pump station, and a Terminal Reservoir
- An expanded ASR system, including two additional injection/extraction wells, the ASR-5 and ASR-6 Wells, and three parallel pipelines, the ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, and ASR Recirculation Pipeline. These expanded pipelines would convey water to and from the new ASR injection/extraction wells and backwash effluent from the wells to an existing settling basin

Table 3-1 summarizes the proposed MPWSP facilities; for detailed descriptions of the facilities and definitions of technical terms contained in Table 3-1, see Sections 3.2.1 through 3.4. As discussed in Section 1.1, Introduction, CalAm's application for the proposed project also includes an option that would meet all of the project objectives by combining a reduced-capacity desalination plant (6.4 mgd) with a water purchase agreement for 3,500 acre-feet per year (afy) of advanced treated water from another source, the Pure Water Monterey Groundwater Replenishment (GWR) project. That option is discussed in Chapter 5 as Alternative 5.

3.2.1 Seawater Intake System

3.2.1.1 Subsurface Slant Wells

The seawater intake system would include 10 subsurface slant wells at the coast (eight active and two on standby at any given time) that would draw seawater from beneath the ocean floor for use as source water for the MPWSP Desalination Plant. When compared to vertical wells, slant wells allow for a substantially increased screen length in the target water source, resulting in higher production rates. The subsurface slant wells would be located in the city of Marina, about 2 miles south of the Salinas River, in the retired mining area of the CEMEX sand mining facility (see **Figure 3-3a**). The slant wells would be built south of the existing CEMEX access road.

[3] The existing test slant well would be converted into a permanent well, and nine additional slant wells would be built.

TABLE 3-1
FACILITIES SUMMARY FOR THE PROPOSED PROJECT

Facility	Description	Purpose
Seawater Intake System		
Subsurface Slant Wells	• Ten slant wells (one existing test slant well converted into a permanent well plus nine new wells), with up to eight wells operating at any given time and two wells on standby. • Each slant well would be 900 to 1,000 feet long with a diameter of 22 to 36 inches, and extend beneath the coastal dunes, sandy beach, and the surf zone, terminating 161 to 356 feet seaward of the Mean High Water (MHW) line (i.e., within MBNMS, except #8 which would not extend past the MHW line) and at a depth of 190 to 210 feet below the seafloor. • The wellheads (surface components) for the ten slant wells would be located at six sites along the back (inland) side of the dunes: two sites with three slant wells each and four sites with one slant well each. • Each slant well would be equipped with a 2,500 gpm, 300 hp submersible well pump for a total feedwater supply of 24.1 mgd from 8 active slant wells. • Each well site would have one wellhead vault (Sites 1, 3, 4, and 5) or three wellhead vaults (Sites 2 and 6), aboveground mechanical piping (meter, valves, gauges), one electrical control cabinet, and one pump-to-waste vault. • Except for Site 1 (test slant well site), the aboveground facilities (at Sites 2 through 6) would be built on a concrete pad ranging between 5,250 and 6,025 square feet in area.	The slant wells would draw seawater from groundwater aquifers that extend beneath the ocean floor (the Dune Sands Aquifer and the 180-Foot-Equivalent Aquifer of the Salinas Valley Groundwater Basin) for use as source water for the MPWSP Desalination Plant.
Source Water Pipeline	• 2.2-mile-long, 42-inch-diameter pipeline • A hydraulic surge facility comprising valves or hydro pneumatic tanks would be located near the collector pipe/Source Water Pipeline connection point, south of the CEMEX access road and inland of the dunes.	This pipeline would convey the source water from the slant wellheads located inland of the dunes, to the MPWSP Desalination Plant. The surge facility would control the hydraulic pressure in the Source Water Pipeline.
Desalination Facilities		
Pretreatment System	• Pressure filters or multimedia gravity filters would be partially housed within a 6,000-square-foot pretreatment building. • Two 300,000-gallon backwash supply and filtered water equalization tanks • Two 0.25-acre, 10-foot-deep, lined backwash settling basins with decanting system • Multi-purpose pump station would consist of an outdoor concrete pad, with an area of approximately 8,000 square feet, located central to the process facilities, and include the following equipment: – Seven cartridge filters	The pretreatment system would treat source water to remove suspended and dissolved contaminants that could damage the RO system, thus increasing the efficiency and lifespan of the RO system. Cartridge filters would remove fine particulates from the filtered water and protect the RO membranes. Filtered water pumps would direct process water through the cartridge filters to RO system. Backwash supply pumps would be used to clean the media in the pressure filters.

TABLE 3-1 (Continued)
FACILITIES SUMMARY FOR THE PROPOSED PROJECT

Facility	Description	Purpose
Desalination Facilities (cont.)		
Pretreatment System (cont.)	– Four filtered water pumps: Two 12-mgd, 350-horsepower (hp) pumps, and two 6-mgd, 200-hp pumps – Two backwash supply pumps (16 mgd, 150 hp each)	
Reverse Osmosis (RO) System	• First-pass seawater RO system comprising seven modules (six active and one standby), with each module producing 1.6 mgd of "permeate," that is, the purified water produced through the RO membrane. • Partial second-pass brackish water RO system comprising four modules (three duty and one standby), with each module producing 1.3 mgd of permeate. • The RO units and cleaning systems and chemical storage tanks would be housed within a 30,000-square-foot process and electrical building (membrane process building).	The RO system would remove salts and other minerals from pretreated source water.
Post-treatment System	• Ultraviolet disinfection system (if required) comprising three reactors (two active and one standby) that would be housed in the membrane process building. • Carbon dioxide system comprising one 120-ton storage tank and feed equipment in a concrete enclosure that would be located next to membrane process building • Lime system comprising two 20,000-gallon storage tanks and feed equipment in a concrete enclosure that would be located next to membrane process building	If required by the State Water Resources Control Board (SWRCB) Division of Drinking Water, the UV Disinfection system would provide additional primary disinfection. The carbon dioxide and lime systems would adjust the hardness, pH, and alkalinity of the desalinated product water in accordance with drinking water requirements.
Chemical Storage (Membrane Process Building)	The following treatment chemicals would be housed in the membrane process building. The storage tanks/drums would sit on concrete stalls with secondary containment curbs to contain inadvertent spills of hazardous treatment chemicals: • Sodium hypochlorite - two 6,500-gallon storage tanks • Sodium hydroxide - one 5,200-gallon tank • Sulfuric acid -one 10,000-gallon tank • Sodium bisulfite - one 6,000-gallon tank • Zinc orthophosphate -one 5,600-gallon tank • Anti-scalant - one 6,300-gallon tank • Non-ionic polymer – multiple 55-gallon drums	The sodium hypochlorite system would generate low-concentration chlorine solution using salt and electricity; and the chlorine would provide primary and residual disinfection for drinking water. The sodium hydroxide system would adjust the pH and alkalinity of the desalinated product water and disinfect the water in accordance with drinking water requirements. The sulfuric acid system would be used to clean the RO membranes. The sodium bisulfite system would be used to dechlorinate process waters and brine in the treatment, cleaning and disposal processes. The zinc orthophosphate system would be used as a corrosion inhibitor in the treated water to protect the distribution system.

TABLE 3-1 (Continued)
FACILITIES SUMMARY FOR THE PROPOSED PROJECT

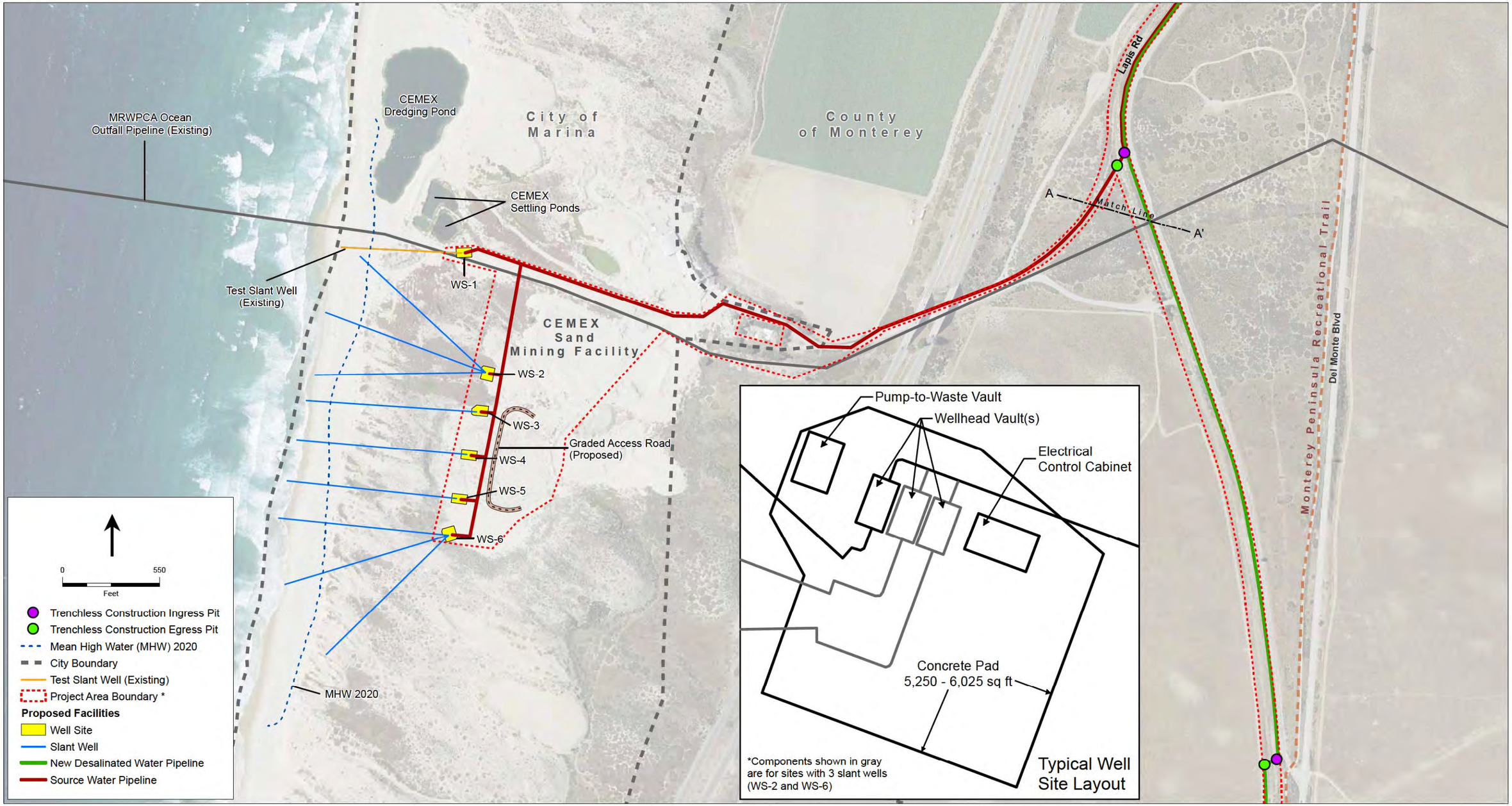
Facility	Description	Purpose
Desalination Facilities (cont.)		
Chemical Storage (Membrane Process Building) (cont.)		The anti-scalant system would be used in the treatment process to reduce fouling and protect the RO membranes. The non-ionic polymer system would be used in the treatment process to improve settling of particulates in the used washwater from the pressure filters before the clarified washwater was returned to the plant for treatment or disposed of with the brine.
Administrative Building	• 4,000- to 6,000-square-foot building	This building would house restrooms, locker rooms, break rooms, conference rooms, electrical controls, laboratory facilities, equipment storage and maintenance, and electrical service equipment.
Brine Storage and Disposal Facilities		
Brine Storage and Disposal	• 3-million-gallon brine storage basin • 1-mile-long, 30-inch-diameter Brine Discharge Pipeline • Two 6 mgd, 40 hp brine disposal pumps • Brine aeration system	Brine concentrate produced during the RO process would be conveyed to the brine storage basin located at the MPWSP Desalination Plant. The Brine Discharge Pipeline would convey decanted effluent from the pretreatment filtration backwash cycle and RO concentrate produced by the RO system (both located in the membrane process building) and brine stored in the brine storage basin to the headworks of the existing MRWPCA outfall. The brine aeration system would maintain dissolved oxygen concentrations in the brine at acceptable levels.
MRWPCA Ocean Outfall Pipeline and Diffuser (existing)	• Existing 2.3 mile-long, 60-inch diameter pipe (onshore portion) • Existing 2.1-mile-long, 60-inch-diameter pipe (offshore portion) • Existing 1,100-foot-long diffuser with 172 ports, each 2 inches in diameter and spaced 8 feet apart	Brine and pretreatment backwash effluent from the desalination plant would be conveyed from the headworks, to the existing ocean outfall pipeline. The existing outfall terminates at a diffuser located offshore in MBNMS that would discharge the brine concentrate or brine blended with treated wastewater effluent to Monterey Bay.
Desalinated Water Conveyance and Storage Facilities		
Treated Water Storage Tanks	• Two approximately 103-foot-diameter, 1.75-million gallon above ground treated water storage tanks (with a total combined storage volume of 3.5 mg).	The treated water storage tanks would serve as holding tanks from which water would be pumped to either the CalAm water system, the existing CSIP pond or the Castrovile Pipeline.
Desalinated Water Pumps	• Desalinated water pumps and equipment would be located at a multi-purpose pump station and would include the following equipment: – Four 4.8 mgd, 600 hp treated water pumps – Two 2.4 mgd, 300 hp treated water pumps – Two 1.4 mgd, 10 hp Salinas Valley return flow pumps	The treated water pumps would pump desalinated water from the MPWSP Desalination Plant through distribution pipelines to the customers in the Monterey District service area. The Salinas Valley pumps would direct desalinated water (i.e., Salinas Valley return flows) from the MPWSP Desalination Plant to the Castroville Community Services District (CCSD) and/or CSIP system.

TABLE 3-1 (Continued)
FACILITIES SUMMARY FOR THE PROPOSED PROJECT

Facility	Description	Purpose
Desalinated Water Conveyance and Storage Facilities (cont.)		
New Desalinated Water Pipeline	• 3.3-mile-long, 36-inch-diameter pipeline	This pipeline would convey desalinated water from the treated water storage tanks at the MPWSP Desalination Plant to the new Transmission Main at Reservation Road.
New Transmission Main	• 6-mile-long, 36-inch-diameter pipeline	This pipeline would convey desalinated water between the new Desalinated Water Pipeline at Reservation Road, crossing U.S. Army-owned property along General Jim Moore Blvd. to the existing Phase I ASR Facilities.
Terminal Reservoir	• Two 3-million-gallon storage tanks	These tanks would store desalinated water and ASR product water.
Carmel Valley Pump Station	• 3 mgd, 100 hp pump station	This 500-square-foot facility would provide the additional water pressure needed to pump water through the existing Segunda Pipeline into Segunda Reservoir.
Interconnection Improvements for Highway 68 Satellite Systems a) Ryan Ranch–Bishop Interconnection b) Main System–Hidden Hills Interconnection	• 1.1-mile-long, 8-inch-diameter pipeline • 1,200-foot-long, 6-inch-diameter pipeline • Two new 350 gpm pumps	These interconnection pipelines and associated improvements would allow CalAm to convey MPWSP water supplies to the Ryan Ranch, Bishop, and Hidden Hills satellite water systems.
Castroville Pipeline	• 4.5-mile-long, 12 inch-diameter pipeline extending from MPWSP Desalination Plant to Castroville (see Figures 3-11 and 3-12)	This pipeline would convey desalinated water from the MPWSP Desalination Plant to the Castroville Seawater Intrusion Project (CSIP) distribution system and the CCSD Well #3. Desalinated water would be delivered to the CSIP system via a new connection point located approximately halfway along the pipeline alignment at Nashua Road and Monte Road. At the northern pipeline terminus, desalinated water would be delivered to the CCSD Well #3 at Del Monte Avenue and Merritt Street.
Pipeline to CSIP Pond	• 1.2-mile-long, 12-inch-diameter pipeline (see Figure 3-5)	This pipeline would convey desalinated water from the MPWSP Desalination Plant to the CSIP pond for subsequent delivery to agricultural users in the Salinas Valley.

TABLE 3-1 (Continued)
FACILITIES SUMMARY FOR THE PROPOSED PROJECT

Facility	Description	Purpose
ASR System		
Two new ASR Injection/Extraction Wells, referred to as ASR-5 and ASR-6 Wells	• Two proposed 1,000-foot-deep injection/extraction wells (ASR-5 and ASR-6 Wells) with a combined injection capacity of 2.2 mgd and extraction capacity of 4.3 mgd	The proposed new ASR injection/extraction wells would be used to inject Carmel River supplies and desalinated water into the Seaside Groundwater Basin for storage. The two proposed ASR wells would be located on U.S. Army-owned property in the Fitch Park neighborhood of the Ord Military Community. The four existing ASR wells would also be used for these purposes. During periods of peak demand, the stored water would be extracted and delivered to customers.
ASR System (cont.)		
ASR Pipelines: 1. ASR Recirculation Pipeline 2. ASR Conveyance Pipeline 3. ASR Pump-to-Waste Pipeline	• Three parallel 0.9-mile-long, 16-inch-diameter pipelines	ASR Recirculation Pipeline would be used to convey water from existing conveyance pipelines and infrastructure at Coe Avenue and General Jim Moore Boulevard to the new ASR-5 and ASR-6 Wells for injection. ASR Conveyance Pipeline would be used to convey extracted ASR water supplies to the existing infrastructure at Coe Avenue/General Jim Moore Boulevard. ASR Pump-to-Waste Pipeline would convey backflush effluent produced during routine maintenance of the ASR-5 and ASR-6 Wells to the existing Phase I ASR settling basin. Portions of the ASR Recirculation, ASR Conveyance, and ASR Pump-to-Waste pipelines would be located on U.S. Army-owned property between the proposed ASR wells and the southern end of U.S. Army property located north of the Coe Avenue/General Jim Moore Boulevard intersection.



NOTE:
*Project area boundary refers to the area within which all construction related disturbance would occur.

SOURCE: ESA, 2016

Figure 3-3a
MPWSP Seawater Intake System

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Test Slant Well and Long-Term Aquifer Pump Test

As described in Section 3.1, CalAm has built a test slant well in the CEMEX active mining area and currently is operating the test slant well as a pilot program to collect data. The environmental effects associated with construction and operation of the test slant well were evaluated in accordance with CEQA and NEPA requirements by the City of Marina/California Coastal Commission (CCC) and MBNMS in November 2014, respectively. The test well is permitted through February 2018 and therefore, construction of the test slant well and operation of the pilot program are not evaluated in this EIR/EIS. The site-specific field data collected during the pilot program are intended to inform the final design of the subsurface slant wells, the overall seawater intake system, and the MPWSP Desalination Plant treatment system. The test slant well facilities include the test well, a submersible well pump, a wellhead vault, electrical facilities and controls, temporary flow measurement and sampling equipment, monitoring wells, and a temporary pipeline connection to the adjacent MRWPCA ocean outfall pipeline for discharges of the test water. The test slant well was drilled at 19 degrees below horizontal, is 724 feet long, and is screened[4] for 450 linear feet at depths corresponding to both the Dune Sand Aquifer and the underlying 180-Foot-Equivalent Aquifer of the Salinas Valley Groundwater Basin (see Section 4.4, Groundwater Resources, for aquifer descriptions).

Upon completion of the aquifer pump testing, CalAm proposes to convert the test slant well into a permanent well and operate it as part of the MPWSP seawater intake system. Both the construction of the additional conveyance and treatment facilities needed to convert the test slant well into a permanent well and the long-term operation and maintenance of the converted test slant well are part of the proposed project, and thus evaluated in this EIR/EIS. Sections 3.2.1.2 through 3.2.2.6, below, describe the conveyance and treatment facilities for the source water produced at the subsurface slant wells during long-term operations.

Permanent Slant Wells

Each of the 10 subsurface slant wells (the converted test slant well and nine new wells) would have a submersible pump to provide a total combined 24.1 mgd of feedwater when eight wells are operating. The slant wells would be drilled from an onshore location and would extend under the seafloor within MBNMS using a 36-inch- to 22-inch-diameter steel casing. The completed pump columns and wellheads would be 10 to 12 inches in diameter.

The nine new permanent slant wells would be approximately 900 to 1,000 feet long and drilled at approximately 14 degrees below horizontal to extend offshore to a distance of 161 to 356 feet seaward of the MHW line (except #8, which would not extend past the MHW line) and to a depth of 190 to 210 feet beneath the seafloor. This means that although all construction activities and ground disturbance would occur above mean sea level and landward of the MHW line, the well casings would extend subsurface and seaward of the MHW line and below the seafloor within MBNMS. Each well would be screened for approximately 400 to 800 linear feet at depths corresponding to both the Dune Sand Aquifer and the underlying 180-Foot-Equivalent Aquifer of

[4] A well screen is a perforated steel or plastic device placed within the well casing that draws water from the surrounding geologic formations but which minimizes sediment from entering the well. The depth of the screen is based on geologic and hydraulic criteria.

the Salinas Valley Groundwater Basin. CalAm would operate eight wells at a time at approximately 2,100 gallons per minute (gpm) per well and maintain the other two wells on standby.

Table 3-2 presents the total length of each slant well extending seaward of the MHW line. Because the slant wells would be drilled at a 14-degree angle, the horizontal distance to which the wells would extend seaward of the MHW line would be slightly shorter than the length of the well casing. This is illustrated in **Figure 3-3b**, **Illustrative Cross-Sectional View of Subsurface Slant Wells**.

TABLE 3-2
LENGTH OF PERMANENT SLANT WELLS SEAWARD OF 2020 MEAN HIGH WATER (MHW) LINE (feet)

	MHW	MHW + env	MHW storm	MHW storm + env
Test Well	171	248	305	384
SW-1	64	161	235	335
SW-2	213	291	347	425
SW-3	140	226	289	373
SW-4	144	222	278	356
SW-5	190	268	325	403
SW-6	245	323	379	457
SW-7	234	315	373	460
SW-8	-	-	5	173
SW-9	278	356	411	489

NOTES:

MHW = Mean high water - A tidal datum. The average of all the high water heights observed over the National Tidal Datum Epoch. The 2020 MHW at the Monterey Tide Gauge NOAA#9413450 equals 1.53 m (5.02 ft) NAVD88, considering a high sea level rise scenario of 8.1 cm (3.2 in) by 2020 (5.46 ft by 2100). See also Appendices C1 and C2.

"+ env" stands for envelope of change that accounts for the alongshore variability in shore profile.

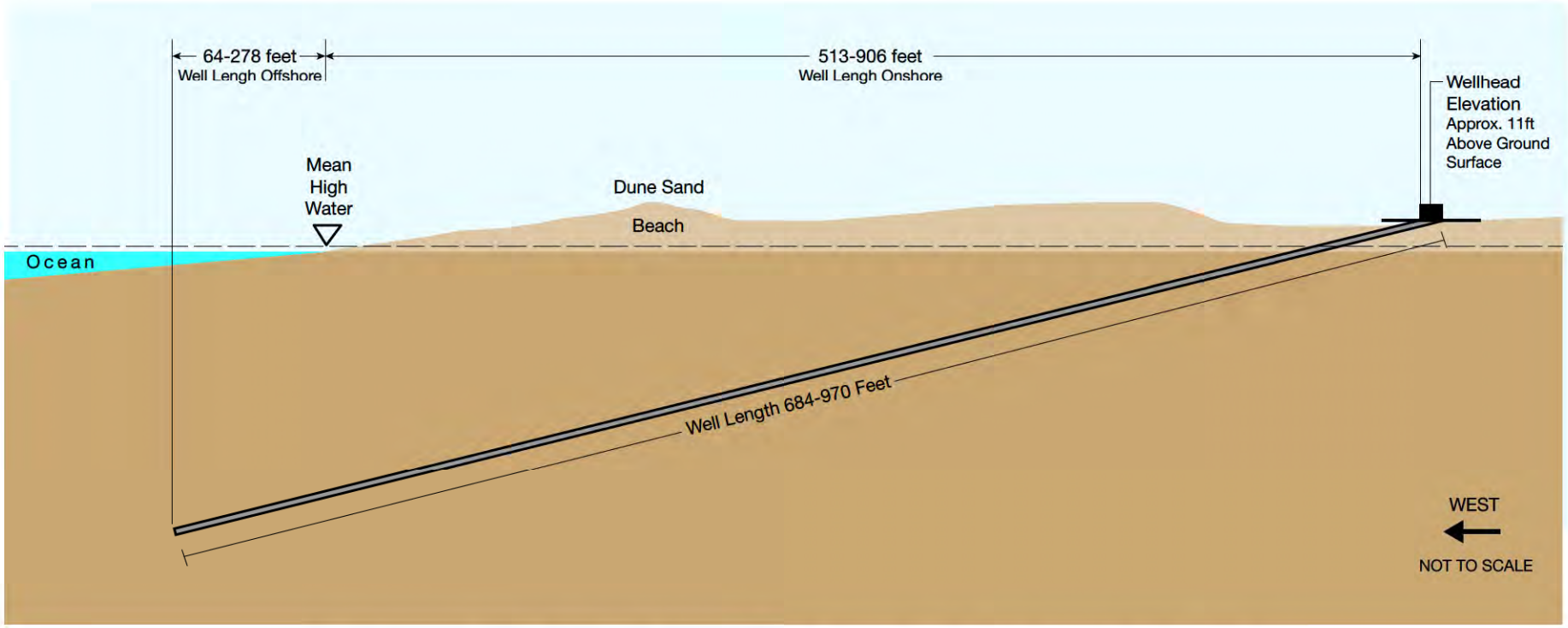
"storm" considers the potential erosion from a large (100-year) coastal storm.

Missing lengths mean the well screen does not extend beyond the MHW line.

The lengths provided in this table indicate the total length of the well casing extending seaward of the MHW line. Because the slant wells would be drilled at an approximately 14-degree angle, the total horizontal distance seaward of the MHW line would be slightly shorter than the length of the well casing. The total horizontal distance seaward of the MHW line can be determined by dividing the length by 1.03.

SOURCE: ESA, 2016

The 10 slant wells would be located at six sites along the back of the dunes: four sites (the test slant well site and three new sites) would each have one slant well, and two sites would have three slant wells (see Figure 3-3a). The well sites are numbered sequentially, with Site 1 being the northernmost site and Site 6 the southernmost site. The test slant well would be converted into a permanent well at Site 1. The nine new permanent wells would be drilled over a total distance of about 900 feet at Sites 2 through 6. The wellheads of the three new permanent wells at Site 2 would be located about 300 feet south of Site 1. Sites 3, 4, and 5 would be spaced approximately 250 feet apart and would have one slant well each. Site 6 would have three wells.



WELL NUMBER	DEPTH OF WELL CASING (BELOW WELL HEAD)	WELL LENGTH (PLAN)	WELL LENGTH ONSHORE (PLAN)	WELL LENGTH OFFSHORE (PLAN)
1	242’	970’	906’	64’
2	242’	970’	757’	213’
3	242’	970’	830’	140’
4	242’	970’	826’	144’
5	242’	970’	780’	190’
6	242’	970’	725’	245’
7	242’	970’	736’	234’
8	242’	970’	NA	NA
9 (Stand-by-2)	242’	970’	692’	278’
Test Slant Well	263’	684’	513’	171’

SOURCE: ESA, 2015

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Figure 3-3b

Illustrative Cross-Sectional View of Subsurface Slant Wells

Sites 1 through 6 would include the following aboveground facilities: one wellhead vault per slant well, mechanical piping (meters, valves, gauges), an electrical control cabinet, and a pump-to-waste vault. Each wellhead would be enclosed in an aboveground 12-foot-long, 6-foot-wide, and 8-inch-tall precast concrete vault. Each slant well would be equipped with a 2,500 gpm, 300 hp submersible well pump. The electrical controls for operation of the slant wells would be housed in a single-story, 16-foot-long by 7-foot-wide fiberglass electrical control cabinet located at each of the six well sites. Each site would also have a pump-to-waste vault for the percolation of turbid water produced during slant well startup and shutdown. The pump-to-waste vault would be a precast 12-foot-long, 8-foot-wide, and 1-foot-tall concrete vault covered with a metal grate and underlain by clean gravel and permeable geotextile fabric. The new permanent slant wells and associated aboveground infrastructure at Sites 2 through 6 would be constructed on a 5,250- to 6,025-square-foot concrete pad located above the maximum high tide elevation on the inland side of the dunes (no concrete pad would be built at Site 1). A 750-foot-long, 42-inch-diameter buried NSF/ANSI 61[5]-certified pipe would collect the seawater pumped from Sites 2 to 6 and convey it to the proposed buried Source Water Pipeline located at the existing CEMEX access road.

3.2.1.2 Source Water Pipeline

The approximately 2.2-mile-long, 42-inch-diameter buried NSF/ANSI 61-certified Source Water Pipeline would convey the source water from the well clusters to the MPWSP Desalination Plant at Charles Benson Road. From the slant wells, the proposed Source Water Pipeline would generally follow the CEMEX access road and would run parallel to the MRWPCA's existing outfall pipeline for approximately 0.7 mile (see **Figure 3-3a**). Approximately 500 feet east of Highway 1, the Source Water Pipeline would veer northeast along a dirt path for roughly 1,000 feet to Lapis Road. There, a jack and bore method would be used to install the pipeline under the existing railroad tracks. The alignment would continue north along Lapis Road for about 0.5 mile. Just south of where Lapis Road meets Del Monte Boulevard, the pipeline would turn east across Del Monte Boulevard and continue east for 0.8 mile to the MPWSP Desalination Plant site at the east end of Charles Benson Road. This 0.8-mile-long segment of pipe would be installed parallel to, and north of, the Charles Benson Road right-of-way (i.e., outside of the paved road). The land that borders Charles Benson Road to the north is separated from Charles Benson Road by a row of mature Monterey cypress and eucalyptus trees and a portion of this land is currently under agricultural production. The pipeline would be installed east-to-west along the north side of the row of trees and along the southern boundary of the agricultural land (see **Figures 3-4** and **3-5a**). CalAm is negotiating an easement with the landowners for installation of the Source Water Pipeline, as well as the new Desalinated Water Pipeline and the Castroville Pipeline, outside of the paved roadway.

[5] National Sanitation Foundation/American National Standards Institute. NSF/ANSI Standard 61 (NSF-61) is a set of national standards that relates to water treatment and establishes stringent requirements for the control of equipment that comes in contact with either potable water or products that support the production of potable water.

NOTE:
*Project area boundary refers to the area within which all construction related disturbance would occur.

SOURCE: ESA, 2016

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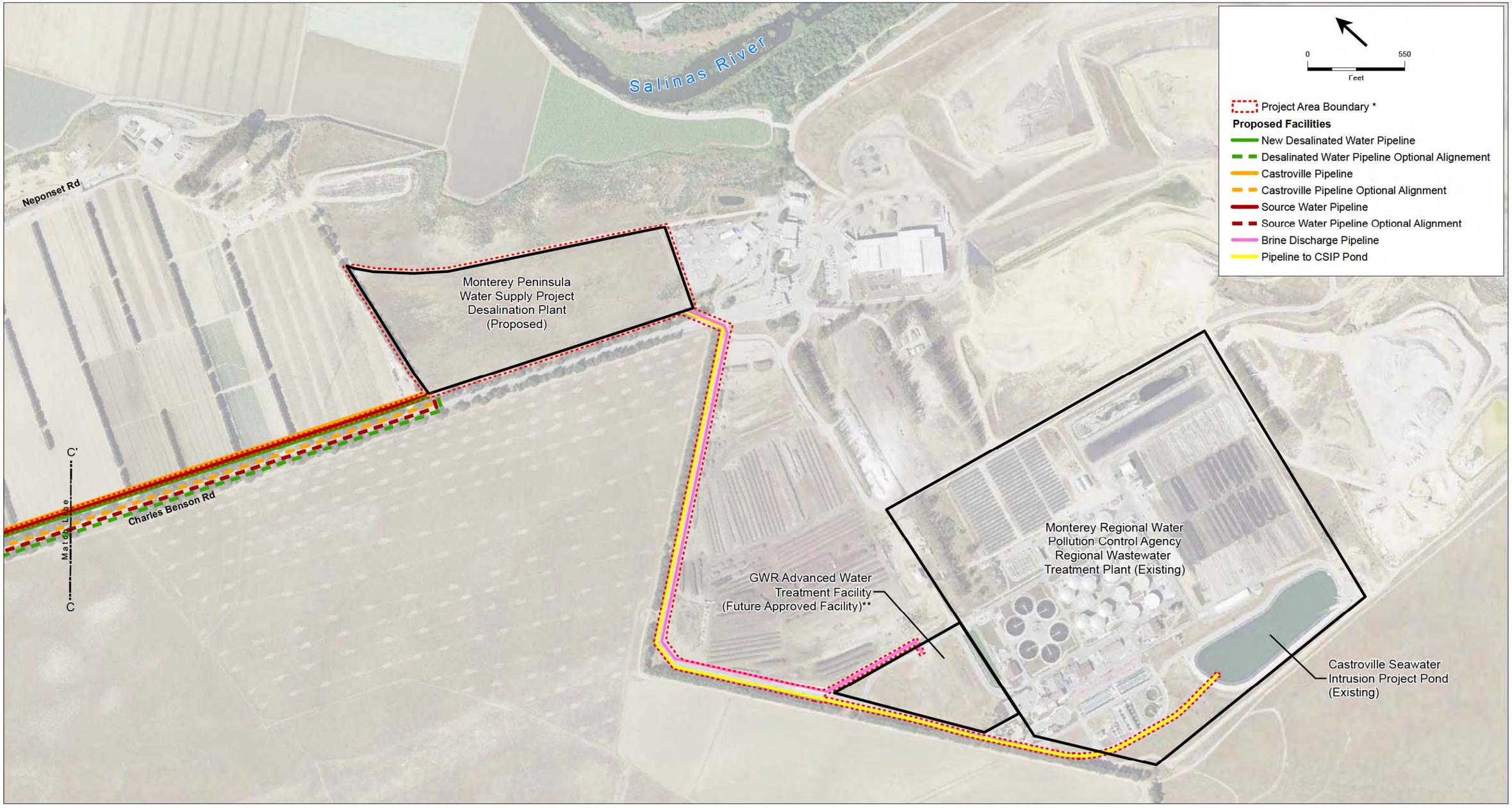
Figure 3-4

Proposed Pipelines - Lapis Road and Neponset Road Vicinity



NOTES:
*Project area boundary refers to the area within which all construction related disturbance would occur.
** This facility was approved by MRWPCA & MPWMD in October 2015 as part of the Pure Water Monterey Groundwater Replenishment Project. The Construction schedule for this facility is currently unknown.

SOURCE: ESA, 2016

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Figure 3-5a
MPWSP Desalination Plant

Source Water Pipeline – Optional Alignment

In case CalAm is unable to secure an easement from the landowners along the north side of Charles Benson Road, this EIR/EIS also evaluates an optional alignment for the Source Water Pipeline. The optional alignment would be identical to the alignment described above, except that the 0.8-mile-long segment along Charles Benson Road would be installed within the paved Charles Benson Road right-of-way (as opposed to north of and outside of the right-of-way) (see **Figures 3-4** and **3-5a**).

3.2.2 MPWSP Desalination Plant

CalAm would build the MPWSP Desalination Plant in unincorporated Monterey County, on the upper terrace (approximately 25 acres) of a 46-acre vacant parcel on Charles Benson Road, northwest of the MRWPCA Regional Wastewater Treatment Plant and the Monterey Regional Environmental Park (see **Figure 3-4**). In 2012, CalAm bought this parcel for the MPWSP Desalination Plant. The facilities to be built at the MPWSP Desalination Plant include a pretreatment system, an RO system, a post-treatment system, backwash supply and filtered water equalization tanks, desalinated product water storage and conveyance facilities, brine storage and disposal facilities, and an administration building and laboratory facility. Existing roads would provide access to the site. The proposed project would create approximately 15 acres of impervious surfaces associated with the desalination facilities, buildings, driveways, parking, and maintenance areas. The subsections that follow describe these facilities. **Figure 3-5b** presents the preliminary site plan.

The MPWSP Desalination Plant would have a rated production capacity of 9.6 mgd and a maximum production capacity[6] of 11.2 mgd.

3.2.2.1 Pretreatment System

Source water from the subsurface intake wells would be conveyed directly to the pretreatment system. The purpose of the pretreatment system would be to improve the quality of source water being treated by the RO system, described in Section 3.2.2.2, below, in order to increase the efficiency of RO treatment. The pretreatment requirements for seawater collected by the proposed slant wells will be determined through the operation of the test slant well and pilot program, but could include coagulation, flocculation,[7] or membrane filtration. The pretreatment system would likely include pressure filters or multimedia gravity filters, a backwash supply storage tank, and backwash settling basins. The pretreatment system would have the capacity to process 24.1 mgd of seawater.

6 Maximum production capacity (11.2 mgd) is the full physical capacity of the MPWSP Desalination Plant with all seven RO modules in service. As described in Section 3.4.1, after shutdown periods, CalAm may need to operate the desalination plant at maximum production capacity of 11.2 mgd to catch up on production; however, the total annual production would not exceed an average of 9.6 mgd (Svindland, 2014).

7 Flocculation is a process used to separate suspended solids from water. Flocculation involves the addition of an agent to water to promote the aggregation of suspended solids into particles large enough to settle or be removed.

The pressure filters or multimedia gravity filters would be located within the MPWSP Desalination Plant site. If pressure filters are used, multiple parallel fiberglass or lined steel tanks would be partially enclosed in a 30-foot-tall, 6,000-square-foot building. If gravity filters are used, they would be installed in below-grade, multi-cell concrete structures. A low dosage of chlorine would be added to the source water to separate out iron and manganese, and the precipitate would be removed by the filters. In addition, the pretreatment system could play an important role in pathogen removal. Because a portion of the source water supply would be groundwater under the influence of surface water as defined under the U.S. Environmental Protection Agency (USEPA) Surface Water Treatment Rule,[8] the source water would be subject to the Surface Water Treatment Rule and the Long-Term 2 Enhanced Surface Water Treatment Rule.

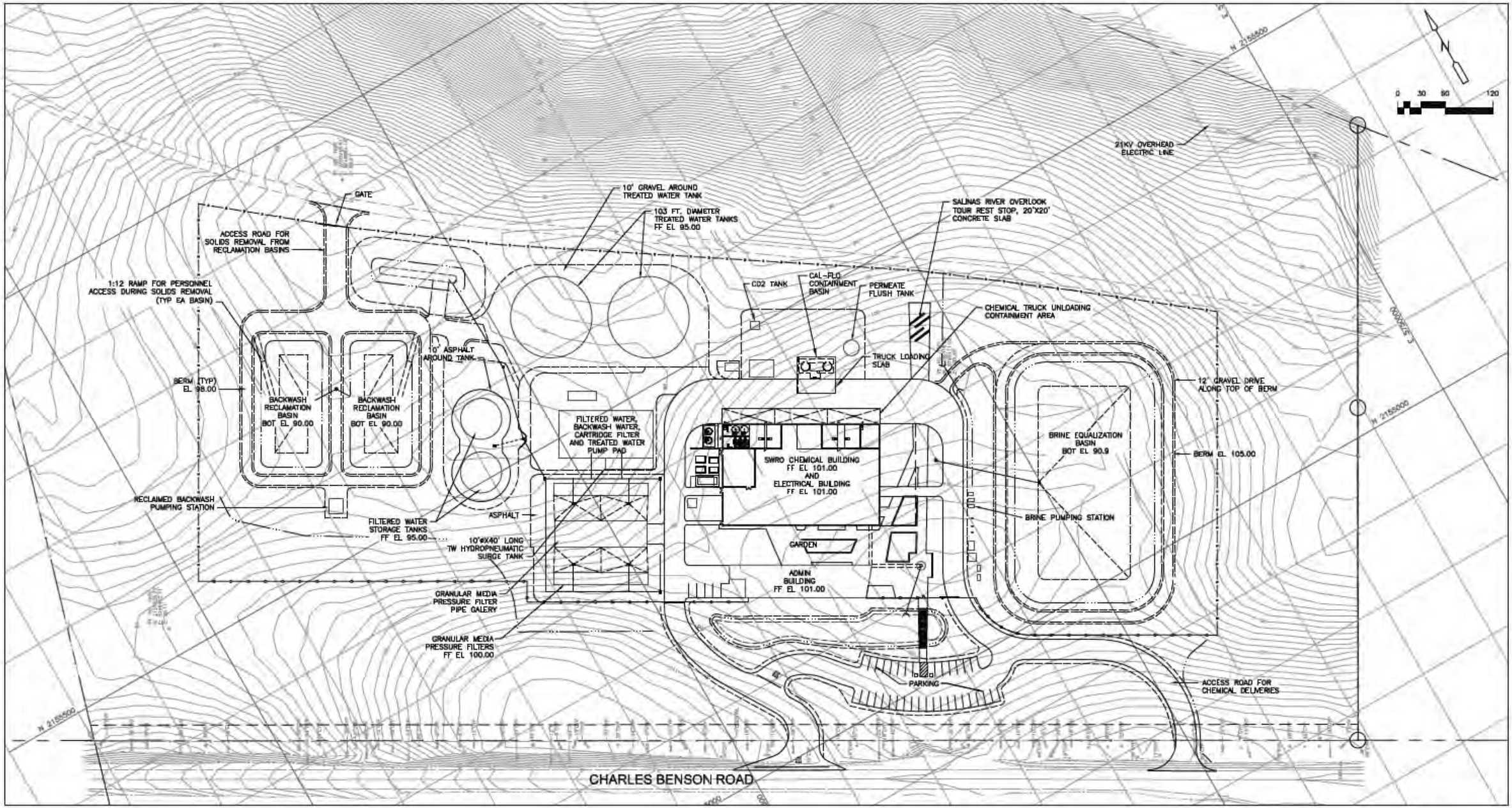
The pretreatment process would produce approximately 23.6 mgd of pretreated, filtered source water. The pretreated source water would be conveyed to two 300,000-gallon backwash supply and filtered water equalization tanks. The majority of the pretreated source water would then be pumped directly to the RO system (see Section 3.2.2.2, below).

Pretreatment filters would require backwashing about once each day. A portion of the pretreated source water would be used for this purpose. The backwash supply water would be conveyed from the backwash supply and filtered water equalization tanks to the pretreatment filters by gravity flow. Chlorine may be added to the backwash supply to control bacterial growth on the filters.

Waste effluent produced during routine backwashing would flow via gravity from the pretreatment filters to two 0.25-acre, 6-foot-deep open backwash settling basins with impermeable liners to prevent the waste effluent from infiltrating into the ground. Suspended solids in the waste effluent would settle to the bottom of the basins, and the clarified water would be decanted. Approximately 0.4 mgd of decanted and dechlorinated backwash water would be blended with brine produced by the RO system, and discharged to the existing MRWPCA ocean outfall and diffuser for disposal into the waters of MBNMS. The decanted backwash water could be blended with source water before undergoing pretreatment and the RO process. Sludge formed by the solids in the waste effluent would be periodically removed from the backwash settling basins and disposed of at a sanitary landfill.

A multi-purpose pump station located near the center of the MPWSP Desalination Plant would be built on an outdoor concrete pad with an approximate area of 8,000 square feet. The pump station would include pumping equipment related to pretreatment as well as other processes described later in this section (e.g., treated water and Salinas Valley return water conveyance). Equipment would include seven cartridge filters; four filtered water pumps (two 12 mgd and 350 hp each; and two 6 mgd and 200 hp each); two backwash supply pumps (16 mgd and 150 hp each); four treated water pumps (two 4.8 mgd and 600 hp each; and two 2.4 mgd and 300 hp each); two Salinas Valley return pumps (1.4 mgd and 10 hp each); and associated piping, valves, and instruments.

[8] The USEPA Surface Water Treatment Rule (40 CFR 141.70-141.75) seeks to prevent waterborne diseases caused by viruses, *Legionella*, and *Giardia lamblia*. The rule requires that water systems filter and disinfect water from surface water sources to reduce the occurrence of unsafe levels of these microbes.



SOURCE: CDM Smith, 2014

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Figure 3-5b

MPWSP Desalination Plant–Site Plan

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3.2.2.2 Reverse Osmosis System

RO is an ion separation process that uses semipermeable membranes to remove salts and other minerals from saline water. Pretreated source water is forced at very high pressures through RO membranes. Water molecules, which are smaller than salt and many other impurities, are able to pass through the membranes. A portion of the source water passes through the RO membranes to produce "permeate," or desalinated water; the source water that does not pass through the membranes increases in salt concentration and is discharged as brine, as described in more detail below.

The RO system would be housed in an approximately 30-foot-tall, 30,000-square-foot membrane process building located in the central portion of the MPWSP Desalination Plant site. This building would also house the UV disinfection system (if required) and the cleaning system for the RO membranes (see descriptions below).

The RO process would consist of a first-pass system and a partial (40 to 50 percent) second-pass system. The first-pass RO system would comprise RO modules (six active and one standby), each sized to produce 1.6 mgd of permeate. Variable-speed, low-pressure pumps would pump pretreated source water to variable-speed, high-pressure, first-pass RO feed pumps. The high-pressure RO feed pumps would deliver flow to the first-pass membrane arrays.

Low-pressure, variable-speed pumps would be used to pump the 40 to 50 percent of the first-pass permeate that has a higher concentration of dissolved solids than the rest of the permeate to the second-pass membrane arrays. The second-pass system would reduce the concentrations of these dissolved solids (boron, chloride, and sodium) and would comprise four RO modules (three active and one standby), each sized to produce 1.3 mgd of permeate. The second-pass permeate would then be blended with the bypassed portion of the first-pass permeate to meet required desalinated water quality standards. Approximately 23.6 mgd of pretreated source water would be needed to produce 9.6 mgd of desalinated water.

The RO process would incorporate an energy recovery system that uses pressure-exchange technologies. The use of high-pressure pumps to force saline water through the RO membranes would produce a concentrated brine solution, known as RO concentrate, in a continuous high-pressure stream. Pressure exchangers would be employed to transfer the energy from the high-pressure brine stream to the source water stream to reduce energy demand and operating costs.

The accumulation of salts or scaling (from to microbial contamination, turbidity, and other contaminants such as iron and manganese) on the RO membranes causes fouling, which reduces membrane performance. The pretreatment system described above would reduce fouling of the RO membranes, increasing the efficiency of the RO system and extending the useful life of the RO membranes. However, the RO system still would require cleaning two to three times per year. The RO cleaning system would be housed in the same building as the RO system and would include chemical storage, chemical feedlines, and a collection tank. System operators would clean the RO membranes by circulating a cleaning solution, made of strong bases or acids, through the

membranes and then flushing the membranes with clean water to remove the spent cleaning solution and waste effluent from the RO system. The spent cleaning solution and waste effluent would be discharged into a collection tank, chemically neutralized, and discharged to the sanitary sewer system at the eastern portion of the MPWSP Desalination Plant site.

CalAm would install a 750-kilowatt (kW) (1,000 hp) emergency diesel fuel-powered generator and a 2,000-gallon, double-walled, aboveground diesel storage tank next to the process building. The generator would provide backup power for critical desalination plant facilities (e.g., lights, electrical controls, and high-service pumps to empty the clearwells) during power outages. Electrical power service and facilities for normal (non-emergency) operations are described below in Section 3.2.5.

3.2.2.3 Post-treatment System

After leaving the RO system, the desalinated water would pass through a post-treatment system to make the water more compatible with the other water supply sources in the CalAm system and provide adequate disinfection prior to distribution to customers. Facility operators would use metering pumps and chemical feedlines to dose the post-treatment chemicals through the proper injection points along the post-treatment system. Post-treatment facilities would include chemical feedlines and injection systems for lime and carbon dioxide. Carbon dioxide would be added to adjust alkalinity; lime would be added to adjust calcium hardness; sodium hydroxide would be used to adjust pH; and sodium hypochlorite would be added for disinfection. In addition, an ultraviolet disinfection system may be required to comply with pathogen removal/inactivation standards established by the Surface Water Treatment Rule and Long Term 2 Enhanced Surface Water Treatment Rule. If required, the ultraviolet disinfection system would comprise three reactors, two active and one standby, housed in the membrane process building. The final design of post-treatment facilities would be based on the water quality data collected during operation of the test slant well and pilot program and the results of a geochemical mixing study.[9] Any adjustments made to the post-treatment system during final design of the MPWSP Desalination Plant within the 25-acre development area would not affect any of the analyses or conclusions in this EIR/EIS. All treatment chemicals would be transported, stored and used in accordance with regulatory requirements.

3.2.2.4 Chemical Use and Storage

As noted in previous sections, facility operators would use various chemicals to treat the water as it passes through the pretreatment, RO, and post-treatment processes to ensure the water meets drinking water quality requirements and is compatible with native groundwater in the Seaside

[9] The geochemical mixing study will identify water quality parameters for the desalinated product water to ensure that any desalinated product water injected into underground storage via the ASR system would not adversely affect groundwater quality in the Seaside Groundwater Basin. Refer to Impact 4.4-4 in Section 4.4, Groundwater Resources, for additional discussion of the geochemical mixing study.

Groundwater Basin.[10] The chemicals used during the desalination process would be stored onsite in accordance with applicable regulatory requirements. Chemical storage facilities would include secondary concrete containment, alarm notification systems, and fire sprinklers. **Table 3-3** summarizes the chemicals that would be used during the desalination process and the projected annual usage amounts. The pre-treatment and post-treatment chemicals would be housed in various 5,000- to 10,000-gallon bulk storage tanks located inside or next to the membrane process building. RO cleaning chemicals would be stored in smaller containers. Sumps and sump pumps within the chemical containment area and loading areas would collect and contain any chemicals accidentally released during operations.

TABLE 3-3
DESALINATION CHEMICALS AND ANNUAL USAGE

Chemical	Application	Annual Usage (pounds)
Sodium Hypochlorite	Pretreatment / post-treatment	140,000 / 55,000
Sodium Bisulfite	Pretreated source water	85,000
Carbon Dioxide	Post-treatment	420,000
Lime	Post-treatment	960,000
Sodium Hydroxide	Post-treatment	55,000
Zinc Orthophosphate	Post-treatment	30,000
RO Cleaning Chemicals (various)	RO membrane cleaning	To be determined
Coagulant (if needed)	Pretreatment	To be determined

SOURCE: RBF Consulting, 2013b; CalAm, 2014a.

3.2.2.5 Brine Storage and Disposal

The RO process would generate approximately 14 mgd of brine, including 0.4 mgd of decanted backwash water as noted in Section 3.2.2.1, Pretreatment System. The brine storage and disposal system would consist of an uncovered 3-million-gallon brine storage basin with two impermeable liners; two 6 mgd, 40 hp brine discharge pumps; and a brine aeration system to maintain dissolved oxygen concentrations in the brine at 5 mg/L. Brine from the RO system would be conveyed through the 1-mile-long, 30-inch-diameter Brine Discharge Pipeline to a new connection with the existing MRWPCA ocean outfall that discharges into the waters of MBNMS. When temporary storage is needed, brine would be directed to the brine storage basin where it could be stored for up to 5 hours, then pumped to the Brine Discharge Pipeline.

During some times of the year, brine would be mixed with varying volumes of treated wastewater from the MRWPCA Regional Wastewater Treatment Plant before being discharged through the ocean outfall. During the irrigation season, April through October, the treated wastewater is diverted to the Salinas Valley Reclamation Project's tertiary treatment facility for additional

[10] As discussed in Section 3.4.2, below, during periods of low demand, desalinated product water could be injected into the Seaside Groundwater Basin for storage. The post-treatment system would be designed to ensure that desalinated product water that is injected into underground storage would not adversely affect groundwater quality.

advanced treatment and then used to irrigate crops as part of the Castroville Seawater Intrusion Project (CSIP). During this time period, as long as MRWPCA treated wastewater flows are equal to or less than the CSIP demand for irrigation water, the project's brine stream would be discharged to Monterey Bay without dilution. During the non-irrigation season, November through March, when the CSIP is not operating, the brine stream would at all times be mixed with treated wastewater from the MRWPCA Regional Wastewater Treatment Plant before being discharged to the ocean. A range of possible mixtures of brine and treated wastewater is described in Section 4.3, Surface Water Hydrology and Water Quality.

The existing 2.1-mile-long MRWPCA outfall pipeline ends with a 1,100-foot-long, underwater diffuser that rests on rock ballast. The ports are approximately 6 inches above the rock ballast and nominally 54 inches above the seafloor, although this varies. For the dilution calculations, they are assumed to be 4 feet above the seafloor at approximately 90 to 110 feet below sea level. The diffuser is equipped with 172 ports (129 open and 43 closed), each 2 inches in diameter and spaced 8 feet apart.

3.2.2.6 Administrative Building

A 4,000- to 6,000-square-foot single-story administrative building at the MPWSP Desalination Plant site would house visitor reception, offices, restrooms, locker rooms, break rooms, conference rooms, a control room, a laboratory, an equipment storage and maintenance area, and monitoring and control systems for the RO system, post-treatment system, chemical feed systems, and related facilities.

3.2.3 Desalinated Water Conveyance

Desalinated product water from the MPWSP Desalination Plant would flow south through a series of proposed pipelines (i.e., the new Desalinated Water Pipeline and new Transmission Main), including surface equipment such as valves and blowoffs, to existing CalAm water infrastructure, as described in Sections 3.2.3.3 through 3.4.3.9.

3.2.3.1 Treated Water Storage Tanks

Following post-treatment, desalinated product water would flow to two covered, aboveground tanks. Each tank would be approximately 103 feet in diameter and 35 feet tall, constructed of steel or concrete, and provide 1.75 million gallons of storage, for a total storage volume of 3.5 million gallons.

3.2.3.2 Desalinated Water Pumps

The proposed desalinated water pumps would be located at the multi-purpose pump station described in Section 3.2.2.1, near the center of the MPWSP Desalination Plant. Separate systems would pump desalinated product water to the CalAm water system and to the Salinas Valley. Consistent with the capacity of the MPWSP Desalination Plant, a 9.6 mgd capacity pump system would pump desalinated product water to the CalAm water system. There would be four 4.8 mgd,

600 hp treated water pumps and two 2.4 mgd, 300 hp treated water pumps. Unless the final results of the aquifer pump tests at the existing test slant well dictate otherwise, two 1.4 mgd, 10 hp Salinas Valley return flow pumps would pump desalinated product water (i.e., Salinas Valley return flows) to the Castroville Community Services District (CCSD) and CSIP water distribution systems as described in Sections 3.2.3.7 and 3.2.3.8.

3.2.3.3 New Desalinated Water Pipeline

For conveyance to the CalAm water system, the desalinated water pump station would pump desalinated water through the new Desalinated Water Pipeline and new Transmission Main. From the pump station, the 3.3-mile-long, 36-inch-diameter buried new Desalinated Water Pipeline would extend west for approximately 0.8 mile parallel to the north side of the Charles Benson Road right-of-way. As described above in Section 3.2.1.2, the new Desalinated Water Pipeline would be installed alongside the Source Water Pipeline on the north side of the row of trees and would traverse agricultural land. At Del Monte Boulevard, the new Desalinated Water Pipeline would turn north on Del Monte Boulevard for approximately 800 feet to Lapis Road, and continue south along Lapis Road for approximately 1.3 mile to another Lapis Road/Del Monte Boulevard intersection. From this intersection of Lapis Road and Del Monte Boulevard, the new Desalinated Water Pipeline would be built under the Monterey Peninsula Recreational Trail and Transportation Agency for Monterey County (TAMC) right-of-way using trenchless construction, then continue south along the west side of the Monterey Peninsula Recreational Trail and TAMC right-of-way for approximately 1.4 mile to Reservation Road (see **Figures 3-4** through **3-7**). For the purposes of this EIR/EIS, south of Reservation Road this pipeline is referred to as the new Transmission Main (see Section 3.2.3.4).

New Desalinated Water Pipeline – Optional Alignment

Similar to the optional alignment for the Source Water Pipeline (see Section 3.2.1.2), the optional alignment for the new Desalinated Water Pipeline would be identical to the alignment described in the paragraph above, except that the 0.8-mile-long segment along Charles Benson Road would be installed within the Charles Benson Road paved right-of-way (as opposed to north of and outside of the right-of-way, along private agricultural lands) (see **Figure 3-4**).

3.2.3.4 New Transmission Main

At Reservation Road, water in the new Desalinated Water Pipeline would enter the 6-mile-long, 36-inch-diameter new Transmission Main and continue south along the west side of the Monterey Peninsula Recreational Trail and TAMC right-of-way. At a point approximately 750 feet north of Highway 1, it would cross east under the Monterey Peninsula Recreational Trail and TAMC right-of-way using trenchless construction and continue south on the west side of Del Monte Boulevard and beneath the Highway 1 overpass where it would follow between the Monterey Peninsula Recreational Trail and TAMC right-of-way for approximately 2 miles. At approximately 1,000 feet north of the Lightfighter Drive overpass, the new Transmission Main would cross under Highway 1 and continue southeast for approximately 1,400 feet, making two turns before reaching the south side of Lightfighter Drive, just east of the intersection of Lightfighter Drive and 1st Avenue. The

Highway 1 crossing would require an entry pit at the Monterey Peninsula Recreational Trail and TAMC right-of-way, and an egress pit on the opposite side of Highway 1, between the highway and 1st Avenue. Each of these pits would be approximately 150 feet long by 50 feet wide. The new Transmission Main would continue east along Lightfighter Drive for approximately 0.4 mile to General Jim Moore Boulevard, turn south along the east side of General Jim Moore Boulevard to Normandy Road. South of Normandy Road the pipeline would be located along the west side of General Jim Moore Boulevard, ending at the existing Phase I ASR Facilities near General Jim Moore/Coe Avenue (see **Figures 3-7** through **3-9a**).

New Transmission Main – Optional Alignment

The optional alignment for the new Transmission Main would slightly modify the Highway 1 crossing. Roughly 1,200 feet of the new Transmission Main Optional Alignment would be installed beneath Highway 1 via horizontal directional drilling. The entry pit would be located at the Monterey Peninsula Recreational Trail and TAMC right-of-way, approximately 415 feet north of the Highway 1 and Lightfighter Drive interchange, and an egress pit at the southeast corner of Lightfighter Drive and 1st Avenue (see **Figure 3-8**).

3.2.3.5 Terminal Reservoir

The proposed Terminal Reservoir would comprise two water storage tanks located in an undeveloped portion of the former Fort Ord military base, approximately 1,200 feet (0.2 mile) east of General Jim Moore Boulevard, on the north side of Watkins Gate Road (see **Figure 3-9b**). The Terminal Reservoir tanks would store potable water supplies from a variety of sources, including Carmel River supplies, desalinated product water, and ASR product water from the Seaside Groundwater Basin. The Terminal Reservoir would also serve as the hydraulic control point for the CalAm system in the city of Seaside. This EIR/EIS evaluates two options for the storage tanks: an aboveground option and a buried option. Under either option, each tank would hold 3 million gallons, for a total storage capacity of 6 million gallons, and the 1,200-foot-long section of Watson Gate Road extending from General Jim Moore Boulevard to the Terminal Reservoir site, which is now a dirt access road, would be paved.

Terminal Reservoir – Aboveground Tanks Option

Each aboveground tank would be 33 feet tall and 130 feet in diameter. The two aboveground tanks would be constructed on an approximately 0.75-acre concrete pad. Security fencing would enclose a 3.5-acre area around the aboveground tanks.

Terminal Reservoir – Buried Tanks Option

Under this option the tanks would be fully buried and the ground surface above the tanks would be graded to an elevation of approximately 345 feet, similar to the existing topography. The area above the tanks would be partially landscaped. The buried tanks option would not include a concrete pad or security fencing.

NOTE:
*Project area boundary refers to the area within which all construction related disturbance would occur.

SOURCE: ESA, 2016

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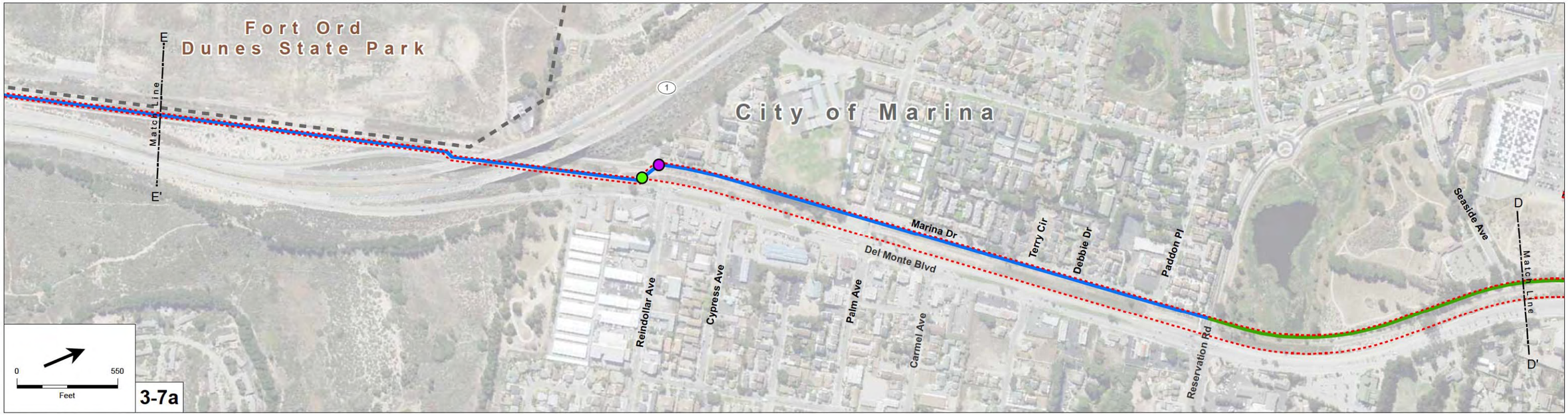
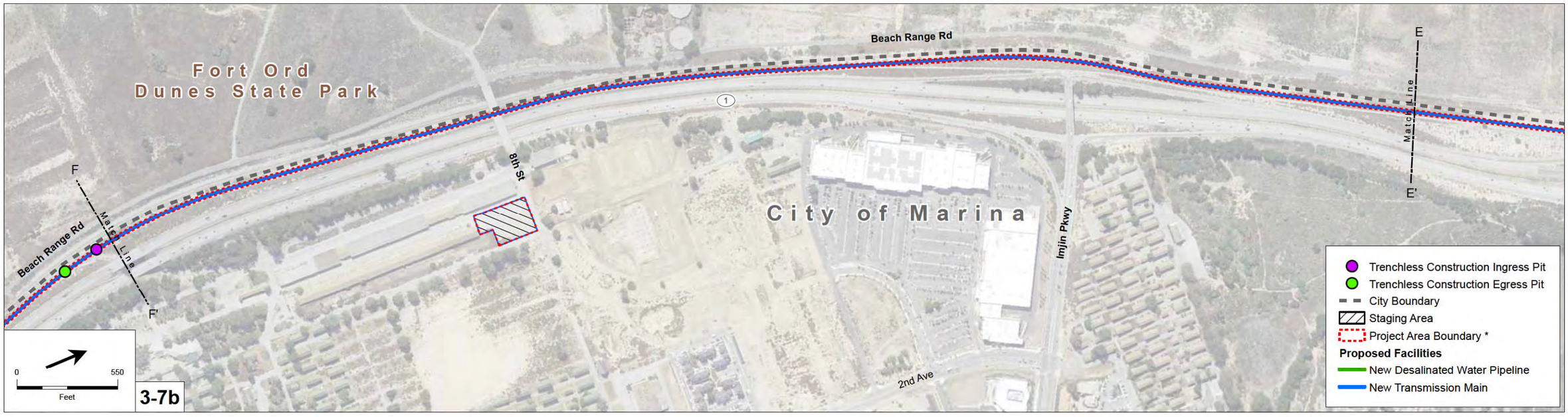
Figure 3-6

New Desalinated Water Pipeline





NOTE:
*Project area boundary refers to the area within which all construction related disturbance would occur.

SOURCE: ESA, 2016

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Figure 3-7

New Transmission Main - City of Marina

NOTE:
*Project area boundary refers to the area within which all construction related disturbance would occur.

SOURCE: ESA, 2016; US ARMY, 2016

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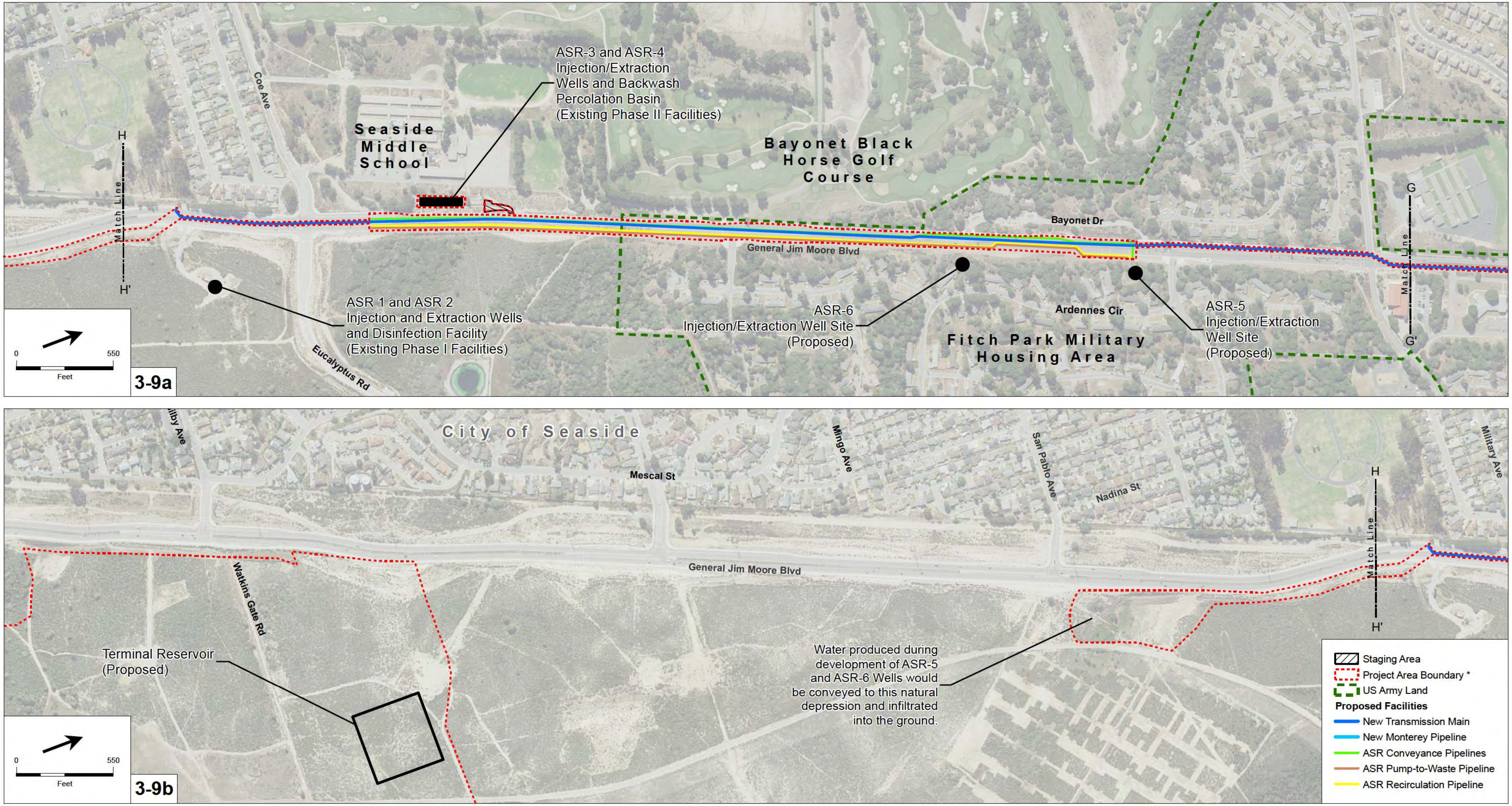
Figure 3-8

New Transmission Main - Light Fighter Drive to General Jim Moore Boulevard



NOTE:
*Project area boundary refers to the area within which all construction related disturbance would occur.

SOURCE: ESA, 2016; US ARMY, 2016

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Figure 3-9
ASR Facilities and Terminal Reservoir

3.2.3.6 Carmel Valley Pump Station

The Valley Greens pressure zone, in Carmel Valley south of the Segunda Reservoir, does not have sufficient hydraulic head to fill the existing Segunda Reservoir, which is located at the southern end of the existing Segunda Pipeline. The proposed Carmel Valley Pump Station, with a pumping capacity of 3 mgd (2,100 gpm), would provide the additional pressure needed to fill Segunda Reservoir. The pump station would be enclosed in a 500-square-foot, single-story building on a site located approximately 240 feet south of Carmel Valley Road near the intersection of Rancho San Carlos Road (see **Figure 3-10c**). A 50 kW (68 hp) portable diesel-fuel powered generator would be stored onsite for use in the event of a power outage. A separate 100-square-foot electrical control building would be constructed outside of the pump station building.

3.2.3.7 Castroville Pipeline

The 4.5-mile-long, 12-inch-diameter Castroville Pipeline would convey desalinated Salinas Valley return water from the MPWSP Desalination Plant to the CSIP distribution system and the CCSD Well #3. As described in Chapter 2, Water Demand, Supplies and Water Rights, the portion of the water drawn from the subsurface slant wells that is determined to be groundwater originating from the Salinas Valley Groundwater Basin, would be delivered to CCSD as desalinated water in lieu of CCSD pumping an equivalent amount of groundwater. Under the proposed project, the first 800 afy would go to the CCSD and the remaining water would go to the CSIP.

From the MPWSP Desalination Plant, the Castroville Pipeline would head west along the north side (outside of the paved roadway, through agricultural land) of Charles Benson Road to Del Monte Boulevard, at which point the pipeline would head north. The pipeline would be installed along Del Monte Boulevard to Lapis Road and then along the west side of Lapis Road within the TAMC right-of-way. It would be installed beneath the Salinas River at the Highway 1 bridge via trenchless construction methods. On the north side of the Salinas River bridge, the pipeline would continue northeast along the TAMC right-of-way and Monte Road to Nashua Road. A new pipe connection to the CSIP distribution system would be built at the northern end of Monte Road, where it meets Nashua Road. The Castroville Pipeline would continue north along a dirt agricultural road and the Union Pacific Railroad, crossing under Tembladero Slough to Highway 183 (Salinas Road). From Highway 183, the pipeline would continue north between Del Monte Avenue and Union Pacific Railroad, turn west across Del Monte Avenue and connect to CCSD Well #3 at the north corner of Del Monte Avenue and Merritt Street (see **Figures 3-4**, **3-5**, **3-11**, and **3-12**).

Castroville Pipeline – Optional Alignment 1

Optional Alignment 1 would provide an alternate pipeline route from the intersection of Monte Road and Nashua Road to CCSD Well #3. From the intersection of Monte Road and Nashua Road, Optional Alignment 1 would turn northwest along Nashua Road to the Monterey Peninsula Recreational Trail. It would continue northeast along the Monterey Peninsula Recreational Trail

on the east side of Highway 1 for approximately 1.5 mile to Merrit Way and continue southeast on Merritt Street for 0.5 mile to CCSD Well #3 (see **Figures 3-11b**, **3-12**, and **3-13**).

Castroville Pipeline – Optional Alignment 2

Similar to the way it evaluates the optional alignments for the Source Water Pipeline and new Desalinated Water Pipeline in Sections 3.2.1.2 and 3.2.3.3, above, this EIR/EIS also evaluates an alternate route for the 0.8-mile-long segment of the Castroville Pipeline along Charles Benson Road to provide a backup plan in the event that CalAm is unable to secure an easement from the agricultural land owners. Under Optional Alignment 2, the segment along the Charles Benson Road would be installed within the paved Charles Benson Road right-of-way, instead of north of and outside of the paved road right-of-way, on private agricultural land (see Figure 3-4).

3.2.3.8 Pipeline to CSIP Pond

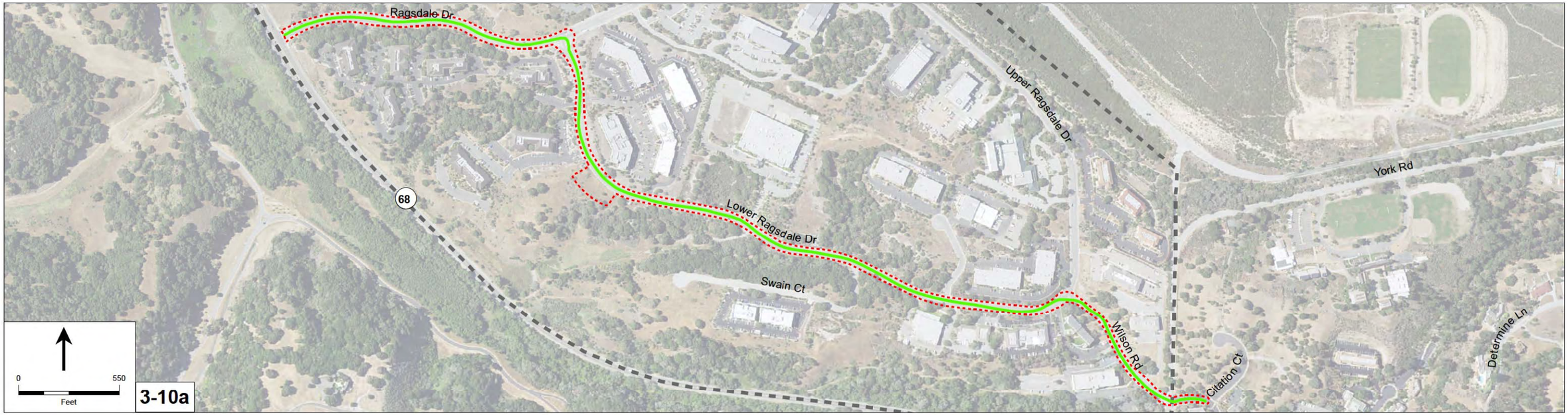
As described in Chapter 2, Water Demand, Supplies and Water Rights, and Section 3.2.3.7 above, the portion of the water drawn from the subsurface slant wells that is determined to be groundwater originating from the Salinas Valley Groundwater Basin, would be delivered to agricultural users in the Salinas Valley Groundwater Basin in lieu of an equal amount of groundwater pumping. The portion of the Salinas Valley return water destined for the CSIP would be delivered via a new connection along the Castroville Pipeline at Nashua Road and Monte Road, this EIR/EIS also evaluates a Pipeline to the CSIP Pond if engineering constraints preclude the new Castroville Pipeline connection. Note that only the return flows to the CSIP pond may have constraints; no issues are anticipated for the connection to the CCSD distribution system. For purposes of CEQA/NEPA environmental review, this analysis conservatively assumes that CalAm would build both the Castroville Pipeline and the Pipeline to CSIP Pond. If CalAm does so, it would pump some of the Salinas Valley return water from the MPWSP Desalination Plant through a new 1.2-mile-long, 12-inch-diameter pipeline to the existing CSIP pond at the southern end of the MRWPCA Regional Wastewater Treatment Plant. The CSIP pond holds 80 af. From the CSIP pond, water would be delivered to agricultural users in the Salinas Valley through existing infrastructure (see **Figures 3-4** and **3-5**).

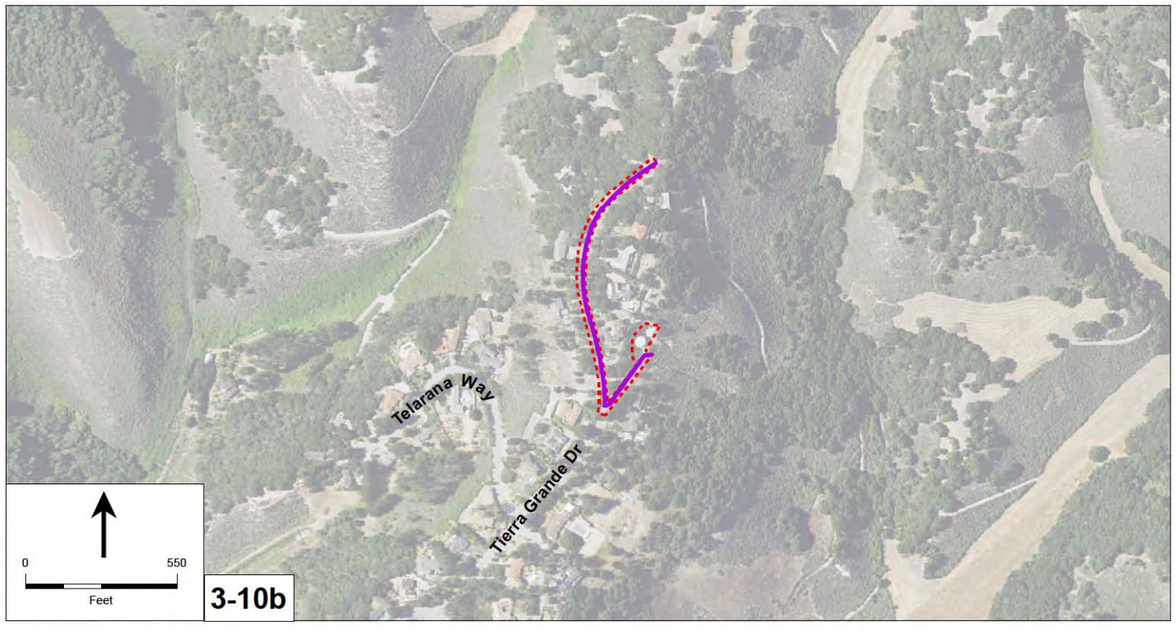
3.2.3.9 Interconnections with Highway 68 Satellite Systems

The proposed project would also improve existing interconnections at three satellite water systems in the unincorporated communities of Ryan Ranch, Bishop, and Hidden Hills, which are located along the Highway 68 corridor (see **Figure 3-10**).

Ryan Ranch–Bishop Interconnection Improvements

Project improvements to the interconnection between the main system and the Ryan Ranch and Bishop systems would involve building a 1.1-mile-long, 8-inch-diameter pipeline from an existing interconnection at Highway 68 and Ragsdale Drive, through the Ryan Ranch community, to a new connection with the Bishop system. The pipeline would be installed within the rights-of-way of Ragsdale Drive, Lower Ragsdale Drive, Wilson Drive, and Blue Larkspur Lane.





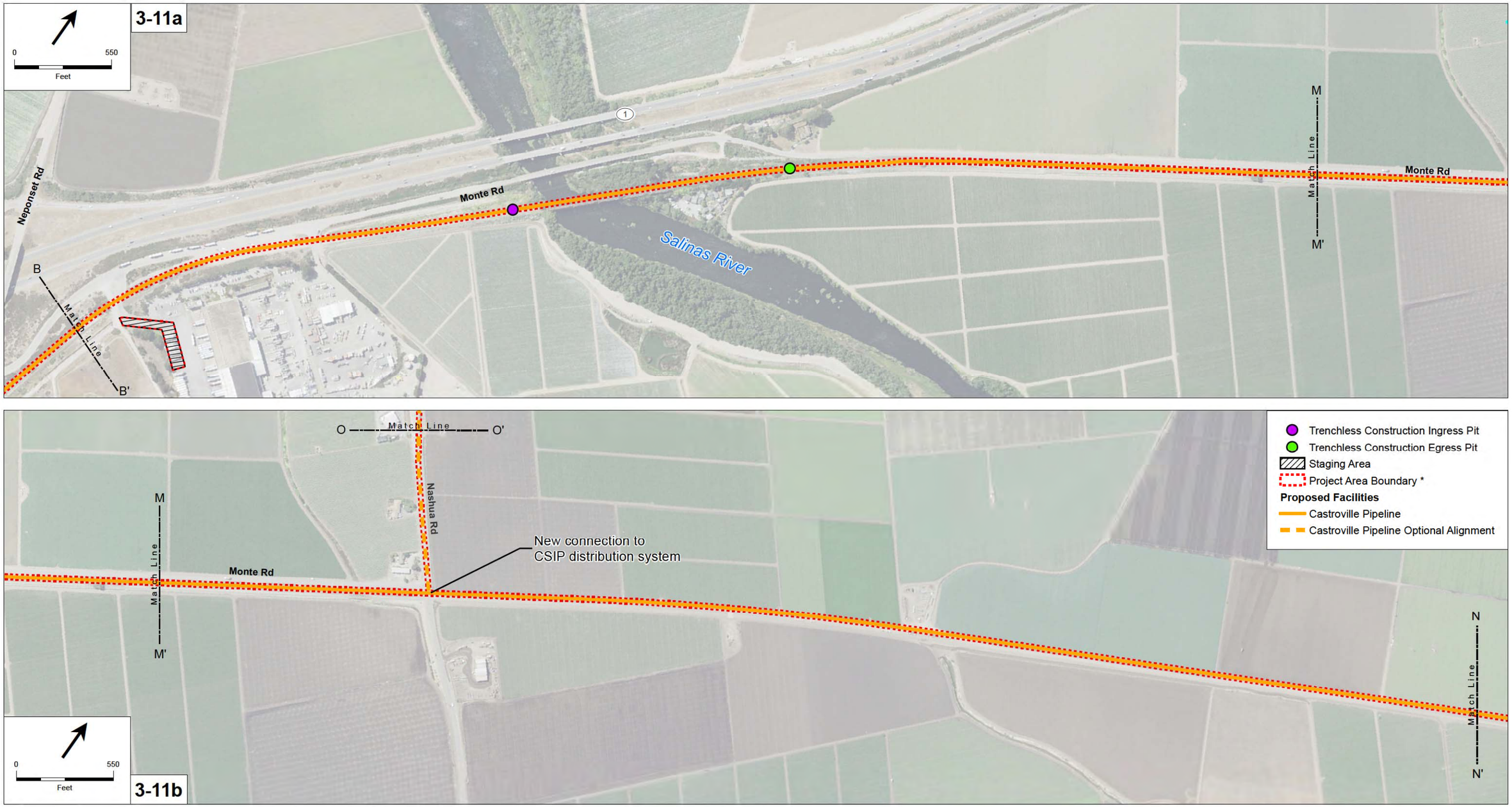
NOTE:
*Project area boundary refers to the area within which all construction related disturbance would occur.

SOURCE: ESA, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 3-10

Highway 68 Interconnection Improvements and Carmel Valley Pump Station

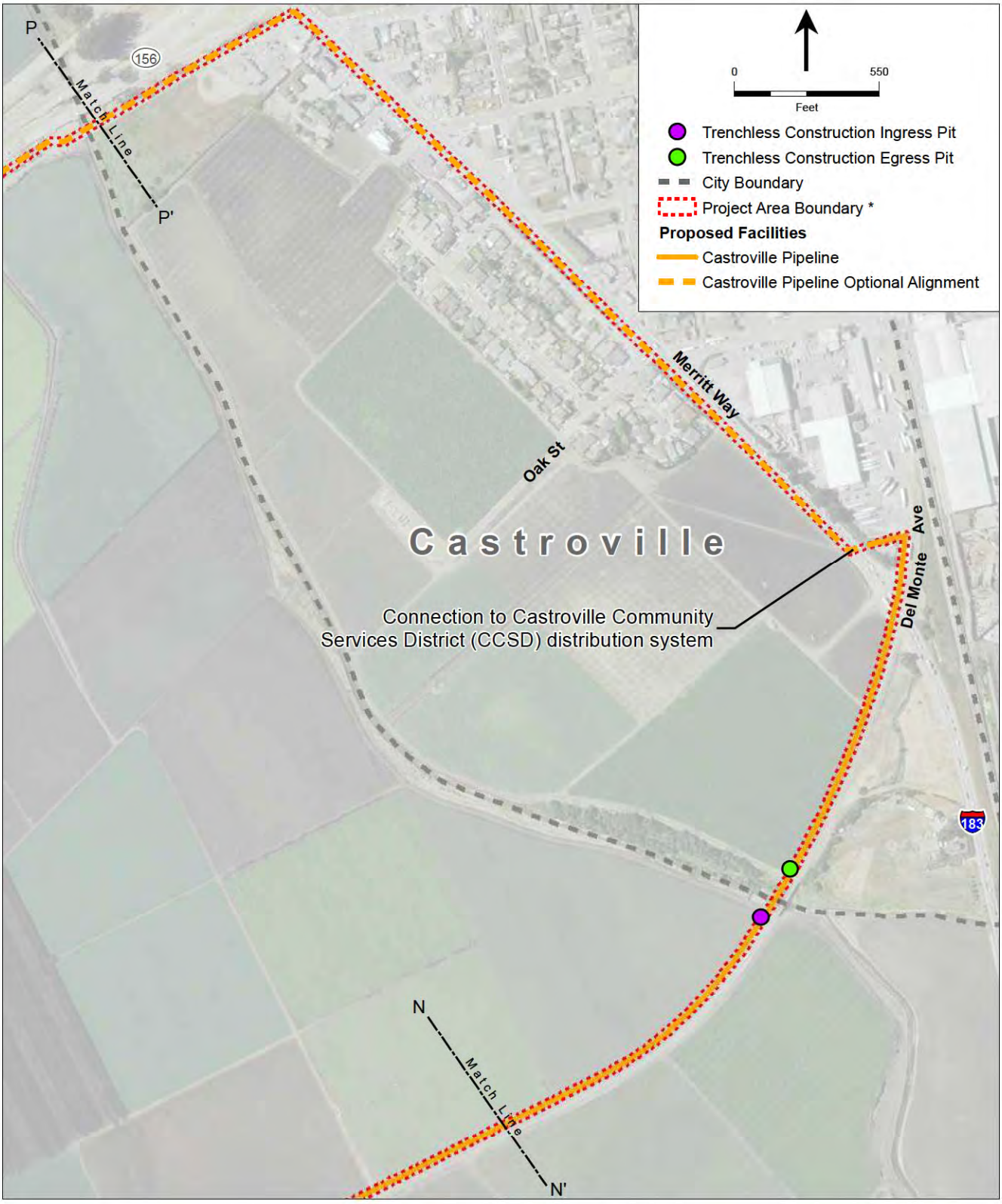


NOTE:
*Project area boundary refers to the area within which all construction related disturbance would occur.

SOURCE: ESA, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 3-11
Castroville Pipeline



205335.01 Monterey Peninsula Water Supply Project

Figure 3-12

Castroville Pipeline - Connection to CCSD Disttibution System

NOTE:
*Project area boundary refers to the area within which all construction related disturbance would occur.

SOURCE: ESA, 2016

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SOURCE: ESA, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 3-13

Castroville Pipeline Optional Alignment

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Main System–Hidden Hills Interconnection Improvements

The existing interconnection between the main CalAm distribution system and the Hidden Hills system would be improved by installing approximately 1,200 feet of 6-inch-diameter pipeline along Tierra Grande Drive, with a connection to the existing Upper Tierra Grande Booster Station. The Upper Tierra Grande Booster Station has an existing capacity of 129 gpm. A new 350 gpm pump would be added to the booster station. In addition, the existing pump capacity of the Middle Tierra Grande Booster Station, located on lower Casiano Drive, would be upgraded from 161 gpm to 400 gpm by adding a new 350 gpm pump (CalAm, 2013a).

3.2.4 Proposed ASR Facilities

As part of the MPWSP, CalAm proposes to expand the existing Seaside Groundwater Basin ASR system to provide additional injection/extraction capacity for both desalinated product water and Carmel River supplies, and to increase system reliability. The proposed improvements to the ASR system include adding two injection/extraction wells, ASR-5 and ASR-6 Wells, and adding three parallel 0.9-mile-long ASR pipelines. The proposed ASR-5 and ASR-6 Wells would be located along General Jim Moore Boulevard on U.S. Army owned property, currently under lease to Monterey Bay Military Housing (MBMH), north of the Phase I and Phase II ASR facilities in Seaside (see **Figure 3-9**). These improvements would not affect CalAm's maximum allowable surface water diversions from the Carmel River for injection into the groundwater basin.

3.2.4.1 ASR Injection/Extraction Wells (ASR-5 and ASR-6 Wells)

CalAm would build two additional injection/extraction wells (ASR-5 and ASR-6 Wells) on two, U.S. Army-owned parcels located east of General Jim Moore Boulevard and south of its intersection with Ardennes Circle, in the Fitch Park MBMH area (see Figure 3-9a). The new injection/extraction wells would be drilled to a depth of approximately 1,000 feet and screened in the Santa Margarita sandstone aquifer. Each well would have a permanent 500 hp multi-stage vertical turbine pump, Supervisory Control and Data Acquisition (commonly called SCADA)[11] controls for remote operation, and various pipes and valves. Each well pump and electrical control system would be housed in a 900-square-foot concrete pump house. A low-voltage, 480-volt, three-phase electrical transformer would be installed at each well site to power the electrical control system. Pacific Gas & Electric Company (PG&E), the local electrical utility, would own and operate the electrical transformers. Security fencing would encompass an approximately 0.4- and 0.5-acre area around the ASR-5 and ASR-6 Wells, respectively (RBF Consulting, 2010).

The existing ASR disinfection system is housed within the chemical/electrical control building at the site of the existing ASR-1 and ASR-2 Wells.[12] The existing disinfection system has sufficient capacity to treat ASR product water extracted from all six ASR injection/extraction wells (i.e., the four Phase I and Phase II wells and the two new wells proposed under the MPWSP). The

[11] SCADA (Supervisory Control And Data Acquisition) is a system for remote monitoring and operations of water supply facilities.

[12] The existing ASR-1 and ASR-2 Wells are also known as Santa Margarita Wells #1 and #2 in other information sources.

disinfection system consists of a 5,000-gallon bulk sodium hypochlorite storage tank, chemical metering pumps, and chlorine residual analyzer. The disinfection system includes double containment for all chemical storage and dispensing equipment, protective vent-fume neutralizers, safety showers for operations personnel, and a forced-air ventilation system.

The ASR-5 and ASR-6 Wells would have a combined injection capacity of 2.2 mgd (1,050 gpm) and combined extraction capacity of approximately 4.3 mgd (3,000 gpm) (RBF Consulting, 2013b). The ASR-5 and ASR-6 Wells would operate in conjunction with the ASR-1, ASR-2, ASR-3, and ASR-4 Wells. With implementation of the MPWSP, any of the six ASR injection/extraction wells could be used to inject desalinated product water and Carmel River supplies.

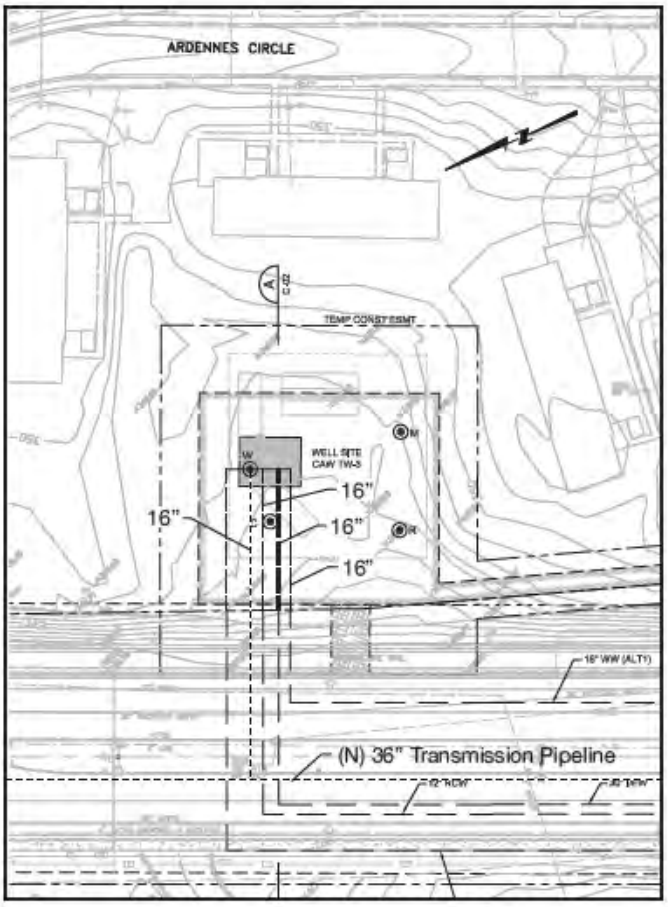
Maintenance of the ASR-5 and ASR-6 Wells would involve routine backflushing of the two wells. Backwash effluent containing elevated levels of sediment and turbidity would be conveyed through the proposed ASR Pump-to-Waste Pipeline (see description below) to the existing settling basin for the Phase I facilities at the intersection of General Jim Moore Boulevard and Coe Avenue, and would infiltrate into the ground. As part of ongoing operations of the ASR system, sediment that accumulates in the settling basin is periodically removed and disposed of at an appropriate disposal site to prevent the settling basin from clogging.

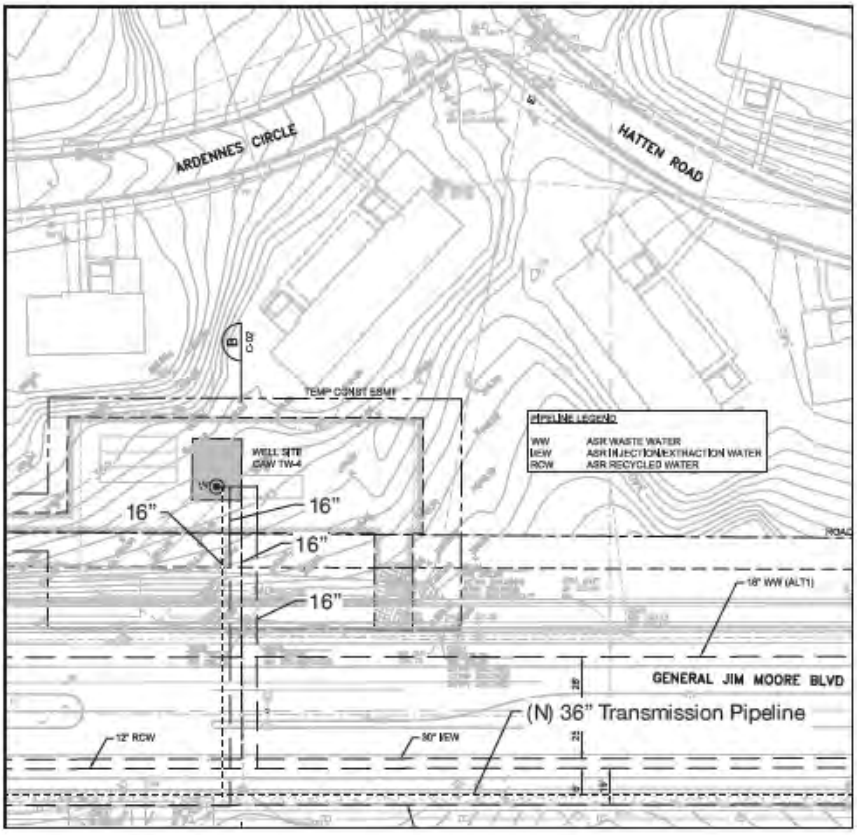
3.2.4.2 ASR Pipelines

Three parallel 0.9-mile-long, 16-inch-diameter ASR pipelines -- the ASR Recirculation Pipeline, the ASR Conveyance Pipeline, and the ASR Pump-to-Waste Pipeline -- would extend along General Jim Moore Boulevard between the proposed ASR-5 and ASR-6 Wells at the Fitch Park MBMH area and the intersection of Coe Avenue and General Jim Moore Boulevard. The ASR Recirculation Pipeline would convey water between existing conveyance pipelines and infrastructure at Coe Avenue and General Jim Moore Boulevard to the ASR-5 and ASR-6 Wells for injection. The ASR Conveyance Pipeline would convey water that is extracted from the ASR-5 and ASR-6 Wells to the same facilities at the intersection of Coe Ave and General Jim Moore Boulevard. The ASR Pump-to-Waste Pipeline would convey backflush effluent from the ASR-5 and ASR-6 Wells to the existing settling basin for the ASR-1 and ASR-2 Wells, which is about 2 miles south of the intersection of General Jim Moore Boulevard and Coe Avenue (see Figure 3-9a). Each of the three, 16-inch diameter ASR pipelines would connect to each of the two new ASR wells; the 36-inch diameter Transmission Main would also connect to each of the two new ASR wells with 16-inch diameter connector pipes (see **Figure 3-14**).

3.2.5 Electrical Power Facilities

Although CalAm may eventually use renewable energy sources to power the MPWSP Desalination Plant (see Section 4.18, Energy Conservation, for a description), this EIR/EIS assumes that all electrical power for the proposed facilities would be provided via new connections to the local PG&E grid. New underground and aboveground power lines would be installed in the CEMEX active mining area for the subsurface slant wells, at the MPWSP Desalination Plant site, the ASR-5 and ASR-6 Well sites, Terminal Reservoir, and Carmel Valley Pump Station to connect the new facilities to the existing power grid.





SOURCE: Parsons

205335.01 Monterey Peninsula Water Supply Project

Figure 3-14

Site Plans: ASR-5 Well and ASR-6 Well

3.3 Construction

3.3.1 Site Preparation and Construction Staging

3.3.1.1 Site Clearing and Preparation

Construction workers would clear and prepare the construction work areas in stages as construction progresses. Before construction starts, the contractor would clear and grade portions of the project area, removing vegetation and debris, as necessary, to provide a relatively level surface for the movement of construction equipment. After construction, the contractor would contour the construction work areas to their original profile, and hydroseed or pave the areas, as appropriate.

3.3.1.2 Staging Areas

Construction equipment and materials would be stored within the construction work areas to the extent feasible. Construction staging for the subsurface slant wells at CEMEX, the MPWSP Desalination Plant, and the ASR-5 and ASR-6 Wells would be accommodated entirely within the project area boundary shown in **Figures 3-3**, **3-5**, and **3.9a**). For construction of all other facilities and pipelines, construction workers would use eight strategically located staging areas in the project area vicinity. The proposed staging areas are sited with the intent of avoiding sensitive riparian areas or critical habitat for protected species. With the exception of the staging area at Seaside Middle School, the designated staging areas are primarily paved, gravel, or dirt parking lots located in highly disturbed areas. **Table 3-4** summarizes the staging area locations and current site conditions. The staging areas are shown as hatched polygons in **Figures 3-3** through **3-12**.

TABLE 3-4
CONSTRUCTION STAGING AREAS

Location	Site Description
Monte Road/Neponset Road in unincorporated Monterey County	Paved parking lot (semi-trucks) at Dole Vegetable Processing Plant
Beach Road in Marina	Paved parking lot at Walmart
Highway 1/1st Street in Marina	Gated paved parking lot
2nd Avenue, between Lightfighter Drive and Divarty Street, in Seaside	Paved parking lot at the Cal State University at Monterey Bay Athletic Fields
2nd Avenue/Lightfighter Drive in Seaside	Paved parking lot
West side of General Jim Moore Boulevard, near Gigling Road, in Seaside	Paved parking lot
East side of General Jim Moore Boulevard, near Gigling Road, in Seaside	Paved parking lot
West side of General Jim Moore Boulevard, near Seaside Middle School, in Seaside	Sandy area

Because all of the staging areas are paved, gravel, or dirt, CalAm's contractors would not need to remove trees or vegetation to use the sites for staging. They would not lay gravel in dirt staging areas. Except for heavy machinery that is operated solely to move lighter-duty machinery in and out of the staging area, and for the use of a front-loaded backhoe to load and unload material onto transportation vehicles for delivery to the construction sites, heavy machinery would not be operated at the staging areas. Only motion-sensored nighttime lighting would be installed at staging areas.

3.3.2 Well Drilling and Development and Related Site Improvements

3.3.2.1 Subsurface Slant Wells

Well installation consists of a two-part process: well drilling and well development. Well development occurs after the wells have been drilled, and is the process of optimizing the water quality and flow into the well. Both are described below.

All construction activities associated with the subsurface slant wells would occur several hundred feet inland of the maximum high-tide elevation and in previously disturbed areas. Surface construction activities would occur outside of MBNMS. Slant well construction would take approximately 15 months to complete, and could take place anytime throughout the overall 24-month construction duration for the proposed project. Construction activities associated with installation of the nine additional subsurface slant wells, including staging, materials storage, and stockpiling, would temporarily disturb approximately 9 acres of land (approximately 1 acre of disturbance per slant well) within the project area boundary shown in **Figure 3-3a**. Construction activities would occur 24 hours per day, 7 days per week, with multiple slant wells being built simultaneously. Construction-related trucks and vehicles would access the slant well site via Del Monte Boulevard, Lapis Road, and existing access roads in the CEMEX active mining area. The construction contractor would use a temporary field office (mobile trailer) in the southern portion of the project area throughout slant well construction activities. The field office and materials receiving and storage would be contained within the 9-acre construction disturbance area.

The proposed slant wells would be built using a dual rotary drilling rig, pipe trailers, portable drilling fluid tanks, Baker tanks (portable holding tanks), haul trucks, flatbed trucks, pumps, and air compressors. The slant wells would be drilled at approximately 14 degrees below horizontal.

Drilling fluids, such as water, bentonite mud, or environmentally inert biodegradable additives, would be used to drill through the first 100 feet or so of the dry dune sands to prevent the sand from locking up the drill bit inside the conductor casing. The bentonite mud used in this initial portion of the borehole would be recirculated into and out of the boring using a mud tank located next to the drill rig. Drill cuttings would be removed from the drilling mud using a shaker table and then the drilling mud would be re-used. Once the drill bit reaches groundwater, the construction contractor would pump out all of the sand-bentonite mud slurry and put it in a

storage container for off-site hauling and disposal. The elevation of the groundwater surface will be determined from the existing monitoring wells (MW-1S and MW-3S).

Below the top of the groundwater table, the remaining 900 feet of borehole would be drilled using water already present in the sand and some potable water; no bentonite mud or other additives would be used to drill this portion. The water and sediment mixture generated during the lower portion of slant well drilling and construction would be placed in settling tanks, as necessary, to allow sediment to settle out. The volume of water produced during this drilling phase would be small enough that the construction contractor would dispose of the clarified effluent by percolating it into the ground at the CEMEX active mining area. Drilling spoils generated during the lower portion of slant well drilling (i.e., not containing bentonite mud or other additives) would be spread within the construction disturbance area and would not require offsite disposal.

The slant wells would be completed using telescoping casing ranging from 22 to 36 inches in diameter and super-duplex 12- to 20-inch diameter stainless steel well screens. A submersible pump would be lowered several hundred feet into each well. To develop the slant wells, each well would be pumped for 2 to 6 weeks during slant well completion and initial well testing. The groundwater pumped from the wells during well development would be discharged to the ocean within the waters of MBNMS via the test slant well discharge pipe and the existing MRWPCA ocean outfall. This well development process would produce a volume of water too great to percolate into the ground at the CEMEX mining area, as compared to the drilling phase described above. Once built, the wellheads would include 12-inch-diameter discharge piping (i.e., flow meter, isolation valve, check valve, pump control valve, air valve, and pressure gauge). This discharge piping would be approximately 2 to 3 feet above the ground on an estimated 6,000-square-foot concrete pad, with some of the mechanical and electrical gear covered by a pre-manufactured shelter to protect them from the elements. The discharge piping would then transition underground via trenching and connect to the buried source water pipeline. The wellheads would be accessible at grade level once completed.

3.3.2.2 ASR Injection/Extraction Wells

Construction activities for new ASR injection/extraction wells would include grading, installation and removal of temporary sound walls; well drilling, installation of pipeline connections to the proposed ASR Conveyance Pipelines along General Jim Moore Boulevard, and installation of electrical equipment and pumps. Construction equipment would include drill rigs, water tanks, pipe trucks, flatbed trucks, and several service vehicles. The new ASR injection/extraction wells would be drilled using the reverse rotary drilling method. Bentonite drilling fluids would not be used during well drilling, but non-corrosive, environmentally inert, biodegradable additives might be used to keep the borehole open if necessary. Most construction activities would extend from 7 a.m. to 7 p.m., 5 days per week; however, continuous 24-hour construction would be necessary for approximately 4 weeks of the initial well drilling until final depth is reached and the borehole is stabilized.

Water produced during development of the ASR-5 and ASR-6 Wells at the Fitch Park MBMH housing area would be conveyed to a 1.4-acre natural depression located east of the intersection

of San Pablo Avenue and General Jim Moore Boulevard via the pump to waste pipeline and percolated into the ground. The well development water would be disposed of in accordance with Central Coast Regional Water Quality Control Board (RWQCB) Resolution No. R3-2008-0010, General Waiver for Specific Types of Discharges (RWQCB, 2008). Any waste material generated during construction of the proposed ASR facilities that requires off-site disposal would be transported to an approved landfill facility.

3.3.3 Desalination Plant Construction

Construction workers would access the MPWSP Desalination Plant site via Charles Benson Road and existing access roads. Construction activities would include cutting, laying, and welding pipelines and pipe connections; pouring concrete footings for foundations, tanks, and other support equipment; building walls and roofs; assembling and installing major desalination process components; installing piping, pumps, storage tanks, and electrical equipment; testing and commissioning facilities; and finish work such as paving, landscaping, and fencing the perimeter of the site. Construction equipment would include excavators, backhoes, graders, pavers, rollers, bulldozers, concrete trucks, flatbed trucks, boom trucks, cranes, forklifts, welding equipment, dump trucks, air compressors, and generators. Pretreatment, RO, and post-treatment facilities would be prefabricated and delivered to the site for installation. Approximately 25 acres of the 46-acre site would be disturbed during construction (see **Figure 3-5**). Construction activities at the desalination plant site are expected to occur over 24 months. Refer to Sections 3.3.5 and 3.3.6, below, for a description of construction activities associated with pump stations and storage tanks.

3.3.4 Pipeline Installation

Approximately 21 miles of pipelines would be installed within the paved roadway or adjacent to roads and the Monterey Peninsula Recreational Trail. Most pipeline segments would be installed using conventional open-trench technology; however, where it is not feasible or desirable to perform open-cut trenching, trenchless methods would be used.

Typical construction equipment for pipeline installation would include flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, Baker tanks, pickup trucks, arch welding machines, generators, air compressors, cranes, drill rigs, and skip loaders. Pipeline segments would typically be delivered and installed in 6- to 40-foot-long sections. Soil removed from trenches and pits would be stockpiled and reused, to the extent feasible, or hauled away for offsite disposal. Under typical circumstances, the width of the disturbance corridor for pipeline construction would vary from 50 to 100 feet, depending on the size of the pipe being installed. Trenchless technologies could require wider corridors at entry and exit pits. Multiple pipelines would be built simultaneously. Although most pipeline construction would occur over a 15-month period, pipeline construction could occur any time throughout the entire 24-month construction period. As shown in **Table 3-5**, the construction durations for most individual pipelines would be much shorter than 15 months. Pipeline installation would be sequenced to minimize land use disturbance and traffic disruption to the extent possible.

TABLE 3-5
CONSTRUCTION ASSUMPTIONS FOR THE PROPOSED PROJECT

Project Component(s)	Total Excess Spoils and Construction Debris (cubic yards)	Construction Equipment		Construction Durations and Work Hours
Subsurface Slant Wells (drilling and development of nine permanent wells, conversion of test slant well to permanent well, and construction of supporting infrastructure in the CEMEX active mining area)	100 cy	• Drilling rig • Pipe trailers • Portable drilling fluid tanks • Flatbed trucks • Haul trucks	• Baker tank(s) • Cranes • Air compressors • Pipe cutting and welding equipment	Construction of the nine permanent slant wells and associated facilities could occur anytime during the construction duration but would take approximately 15 months total. Slant well construction would require 24-hour construction activities.
MPWSP Desalination Plant	0 cy	• Excavators • Backhoes • Air compressors • Loaders • Boom trucks • Cranes • Pavers and rollers • Bulldozers	• Concrete transport trucks • Concrete pump trucks • Flatbed trucks • Generators • Pickup trucks • Trucks for materials delivery	The MPWSP Desalination Plant would be constructed over a 24-month period, and would require 24-hour construction activities.
Pipelines: a) Source Water Pipeline b) New Desalinated Water Pipeline and new Transmission Main c) Castroville Pipeline d) Pipeline to CSIP Pond e) Brine Discharge Pipeline f) ASR Pipelines	a) 1,735 cy b) 15,400 cy c) 600 cy d) 785 cy e) 1,075 cy f) 4,540 cy[LB1] Total for all pipelines = 24,135 cy	• Flatbed trucks • Backhoes • Excavators • Pipe cutting and welding equipment • Haul trucks for spoils transport • Trucks for materials delivery • Compaction equipment	• Baker tank(s) • Pickup trucks • Arc welding machine • Generators • Air compressors • 80-ton crane • Skip loader • Pavers and rollers	Multiple pipelines, sometimes in the same roadway, would be built simultaneously. To the extent feasible, pipeline installation and associated construction activities would occur during the day. This EIR/EIS assumes that the installation of the Transmission Main and three ASR pipelines within the General Jim Moore Boulevard road right-of-way would occur during the day. At other locations, pipeline installation may require nighttime construction to meet the project schedule. Pipeline installation would occur at a rate of approximately 150 to 250 feet per day. The expected construction duration for each pipeline is as follows: a) Source Water Pipeline – 6 months b) New Desalinated Water Pipeline and new Transmission Main – 15 months c) Castroville Pipeline – 4 months d) Pipeline to CSIP Pond – 2 months e) Brine Discharge Pipeline – 3 months f) ASR Pipelines – 5 months

TABLE 3-5 (Continued)
CONSTRUCTION ASSUMPTIONS FOR THE PROPOSED PROJECT

Project Component(s)	Total Excess Spoils and Construction Debris (cubic yards)	Construction Equipment		Construction Durations and Work Hours
ASR Injection/Extraction Wells (ASR-5 and ASR-6 Wells)	280 cy	• Drill rig • Boom truck or crane • Backhoe • Air compressor • Electrical generator • Baker tank	• Excavator • Concrete pumper, concrete truck • Paving equipment • Flatbed trucks • Haul trucks • Welding equipment	Construction of the ASR-5 and ASR-6 Wells at Fitch Park MBMH area would take approximately 12 months. With the exception of 4 weeks of 24-hour construction for each new ASR injection/extraction well during well development and completion (total of 8 weeks of 24-hour construction), construction of these facilities would occur during the day.
Terminal Reservoir	0 cy	• Boom truck or crane • Backhoe • Air compressor • Forklift • Electrical generator • Baker tank	• Excavator • Concrete pumper, concrete truck • Paving equipment • Flatbed trucks • Haul trucks • Welding equipment	Construction of the Terminal Reservoir in the former Fort Ord area would take approximately 15 months. Construction would occur during the day.
Highway 68 Interconnection Improvements a) Ryan Ranch–Bishop b) Main System–Hidden Hills	a) 295 cy b) 100 cy	• Flatbed trucks • Backhoes • Excavators • Pipe cutting and welding equipment • Haul trucks for spoils transport • Trucks for materials delivery • Compaction equipment	• Baker tank(s) • Pickup trucks • Arc welding machine • Generators • Air compressors • 80-ton crane • Drill rig • Skip loader • Pavers and rollers	Construction of these facilities would occur during the day. a) Ryan Ranch–Bishop Interconnection Improvements – 4 months b) Main System–Hidden Hills Interconnection Improvements – 3 months
Carmel Valley Pump Station	200 cy	• Excavator • Backhoe • Air compressor • Boom truck or small crane • Generator	• Concrete pump truck • Paving equipment • Flatbed truck • Pavers and rollers • Welding equipment • Baker tank	The Carmel Valley Pump Station would be built over a 6-month period. Construction at this site would occur during the day.
Total Excess Spoils and Construction Debris =	**Approximately 25,110 cy**			**Overall Construction Schedule =** **July 2018 through June 2020 (24 months total)**

3.3.4.1 Open-Trench Construction

For pipeline segments to be installed using open-trench methods, the construction sequence would typically include:

- clearing and grading the ground surface along the pipeline alignments;
- excavating the trench;
- preparing and installing pipeline sections;
- installing vaults, manhole risers, manifolds, and other pipeline components;
- backfilling the trench with non-expansive fills;
- restoring preconstruction contours; and
- revegetating or paving the pipeline alignments, as appropriate.

A conventional backhoe, excavator, or other mechanized equipment would be used to excavate trenches. The typical trench width would be 6 feet; however, vaults, manhole risers, and other pipeline components could require wider excavations. Work crews would install trench boxes or shoring or would lay back and bench the slopes to stabilize the pipeline trenches and prevent the walls from collapsing during construction. After excavating the trenches, the contractor would line the trench with pipe bedding; that is, sand or other appropriate material shaped to support the pipeline. Construction workers would then place pipe sections (and pipeline components, where applicable) into the trench, weld the sections together as trenching proceeded, and then backfill the trench. Most pipeline segments would have 8 feet of cover. Open-trench construction would generally proceed at a rate of about 150 to 250 feet per day. Steel plates would be placed over trenches to maintain access to private driveways. Some pipeline installation would require construction in existing roadways and could result in temporary lane closures or detours.

3.3.4.2 Trenchless Technologies

Where it is not feasible or desirable to perform open-cut trenching, workers would use trenchless methods such as jack-and-bore, drill-and-burst, horizontal directional drilling, or microtunneling. Pipeline segments located within heavily congested underground utility areas or in sensitive habitat areas would likely be installed using horizontal directional drilling or microtunneling. Jack-and-bore methods would likely be used beneath railroad crossings. Horizontal directional drilling would likely be used for pipeline segments that cross beneath Highway 1 (new Transmission Main) and beneath drainages (Castroville Pipeline). Trenchless methods of pipeline installation would be required at seven identified locations (additional locations may be identified during final pipeline design):

1. Installation of the Source Water Pipeline beneath the TAMC right-of-way at Lapis Road, just north of the CEMEX access Road
2. Installation of the new Desalinated Water Pipeline beneath the TAMC right-of-way near the southern intersection of Lapis Road/Del Monte Boulevard
3. Installation of the new Transmission Main beneath the TAMC right-of-way near Marine Drive/Del Monte Boulevard/Reindollar Avenue

4. Installation of the new Transmission Main (and new Transmission Main Optional Alignment) at Highway 1 and Lightfighter Drive
5. Installation of the Castroville Pipeline under the Salinas River
6. Installation of the Castroville Pipeline under Tembladero Slough

Jack-and-Bore and Microtunneling Methods

The jack-and-bore and microtunneling methods entail excavating an entry pit and a egress pit at either end of the pipe segment. A horizontal auger is used to drill a hole, and a hydraulic jack is used to push a casing through the hole to the egress pit. As the boring proceeds, a steel casing is jacked into the hole and pipe is installed in the casing.

Drill-and-Burst Method

The drill-and-burst method involves drilling a small pilot hole at the desired depth through a substrate, and then pulling increasingly larger reamers through the pilot hole until the hole reaches the desired diameter.

Horizontal Directional Drilling

Horizontal directional drilling requires the excavation of a pit on either end of the pipe alignment. A surface-launched drilling rig is used to drill a small horizontal boring at the desired depth between the two pits. The boring is filled with drilling fluid and enlarged by a back reamer or hole opener to the required diameter. The pipeline is then pulled into position through the boring. Entry and receiving pits range in size depending on the length of the crossing, but typically have dimensions of approximately 50 by 50 feet.

3.3.4.3 Disinfection of Existing and Newly Installed Pipelines

Before connecting existing and new pipelines, CalAm would drain and disinfect the existing pipe segments before putting them into service. Similarly, upon completing construction activities, facility operators would disinfect the newly installed pipelines and pipeline connections before bringing the pipes into service. Effluent produced during the pipeline disinfection process would be discharged to the local stormwater drainage system in accordance with the Central Coast RWQCB *General Waste Discharge Requirements for Discharges with Low Threat to Water Quality* (Order No. R3-2011-0223, NPDES Permit No. CAG993001) (RWQCB, 2011). See Impact 4.3-3 in Section 4.3, Surface Water Hydrology and Water Quality, for additional information.

3.3.5 Carmel Valley Pump Station

Construction crews would prepare the Carmel Valley Pump Station site by removing vegetation and grading the sites to create a level work area. Construction activities would include pouring concrete footing for foundations; assembling and installing piping, pumps, and electrical equipment; building concrete enclosures and roofs; and performing finish work such as paving, landscaping, and fencing the perimeter of the pump station site. Construction access would be provided via existing access roads and roadways. Construction of the Carmel Valley Pump

Station would result in approximately 40,000 square feet (or 0.9 acre) of temporary disturbance, and 1,300 square feet (0.03 acre) of permanent disturbance.

3.3.6 Terminal Reservoir

To construct the two aboveground water storage tanks at Terminal Reservoir, the construction contractor would clear and grade the Terminal Reservoir site and pour the concrete pads for the tanks. The tanks themselves would be built from rolled steel plates, reinforced concrete, or post-tension concrete.

This paragraph describes the tank construction methods that could be used for construction of the two aboveground water storage tanks at Terminal Reservoir as well as the various water tanks at the MPWSP Desalination Plant site. For tanks made of rolled steel plates, the construction contractor would weld the steel plates, erect the plates into place, and then paint the tanks. For tanks made of reinforced concrete, the contractor would erect formwork, place steel reinforcements inside the form, and then pour concrete into the form. The form would be removed once the concrete sets. For tanks made of post-tension concrete, the contractor would erect a steel form and apply shotcrete to both the outer and inner walls of the steel form. Post-tension steel wire would then be wrapped around the tank.

As noted above in Section 3.2.3.5, this EIR/EIS evaluates an aboveground tank option and an underground tank option for Terminal Reservoir. Both options would result in approximately 6 acres of construction disturbance (see **Figure 3-9b**). In addition, the 1,200-foot-long section of Watson Gate Road extending from General Jim Moore Boulevard to the Terminal Reservoir site, which is now a dirt access road, would be paved (about 0.7 acre). Under either option, no excess spoils would be removed from the site. Any excess material would be reused within former Fort Ord military base close to the Terminal Reservoir site.

3.3.6.1 Terminal Reservoir – Aboveground Tanks Option

Construction workers would pour concrete footings for the approximately 0.75-acre concrete pad and install permanent security fencing around a 3.5-acre area surrounding the aboveground tanks.

3.3.6.2 Terminal Reservoir – Buried Tanks Option

Construction of the buried tanks would not require a concrete pad or installation of security fencing. For this option, after building the buried tanks, the area above the tanks would be graded, revegetated, and partially landscaped.

3.3.7 Installation of Powerlines

New underground and aboveground powerlines would be built between existing powerlines in the area and the proposed facilities. For installation of overhead powerlines, power poles would be sited approximately 300 feet apart. Installation of overhead powerlines would occur in two phases: (1) installing the poles, and (2) installing and tensioning the powerline. Access to each pole would be needed at least twice. The poles would probably be set by digging a hole up to

10 feet deep, placing the pole in the hole, and backfilling. At each of the pole locations, an approximately 50-by-50-foot area would be needed for laydown and assembly, and a limited amount of vegetation might require removal, but grading would not be needed. Construction workers would use standard rubber-tired line trucks to access the alignment and to install and tension the new overhead powerlines. The puller/tensioner would be mounted on a utility truck or on a double-axle trailer. Workers might need to trim or remove some vegetation along the alignment to keep vegetation away from the overhead powerlines.

Installation of the new underground powerlines would require excavation of an approximately 1-foot-wide, 3-foot-deep trench along their alignments. After installing each underground powerline in the trench, construction workers would backfill the trench and restore the ground surface.

3.3.8 Spoils Management and Disposal

Excavation and construction activities would generate excess soil, rock, and construction material and debris. Although suitable topsoil and subsoils excavated during construction would be used to backfill excavations and restore work areas, project construction is projected to generate approximately 25,110 cubic yards of excess material requiring offsite disposal at the Monterey Peninsula Landfill and Monterey Materials Recycling Facility. The average capacity of haul trucks is assumed to be 10 cubic yards. Spoils hauling and placement would occur throughout the 24-month construction schedule.

3.3.9 Construction Schedule

The proposed project facilities would be built over approximately 24 months, with an expected construction period of July 2018 through June 2020. Construction activities associated with installation of the nine permanent subsurface slant wells and conversion of the test slant well into a permanent well at the CEMEX active mining area would occur over approximately 15 months. Construction activities for the slant wells could occur 24 hours per day, 7 days per week, except for holidays.

Construction activities at the MPWSP Desalination Plant site would take place over 24 months, and could occur up to 24 hours per day, 7 days per week.

Installation of pipelines and construction of the associated conveyance facilities would occur over 15 to 18 months, with multiple pipelines being installed simultaneously. If possible, the pipeline will be installed during the day and within noise ordinance time limits. However, some pipelines or sections of pipeline could require nighttime construction to meet the schedule. Installation of pipelines within the city of Seaside, including all or portions of the three ASR pipelines (ASR Conveyance Pipeline, ASR Recirculation Pipeline, and ASR Pump-to-Waste Pipeline) and the sections of the new Transmission Main would occur only during the day.

Construction of the proposed Terminal Reservoir would occur over 15 months. Construction of the ASR-5 and ASR-6 Wells would take approximately 12 months. Except for the ASR-5 and

ASR-6 Wells, everything else being built at the Fitch Park MBMH community and at the Terminal Reservoir in the former Fort Ord area would be built during the day. Each ASR injection/extraction well would require continuous 24-hour construction for up to 4 weeks during well completion and development, for a total of 8 weeks of 24-hour construction.

Construction of the Ryan Ranch–Bishop Interconnection Improvements and Main System–Hidden Hills Interconnection Improvements would take approximately 3 and 4 months, respectively.

Construction of the Carmel Valley Pump Station would take approximately 6 months, and would occur during the day.

3.4 Operations and Maintenance

3.4.1 Operation of the Seawater Intake System, MPWSP Desalination Plant, and Brine Discharges

CalAm would operate the subsurface slant wells and MPWSP Desalination Plant 24 hours a day, 365 days per year. It would usually operate the seawater intake wells remotely using SCADA systems. Up to eight subsurface slant wells would run at any given time, with each well producing approximately 3 mgd of source water for the MPWSP Desalination Plant, for a combined total of up to 24.1 mgd of source water. At least two wells would stay on standby. Approximately 25 to 30 facility operators and support personnel would be on site 24 hours a day to operate the desalination facilities.

The MPWSP Desalination Plant would operate at an overall recovery rate of 42 percent. Approximately 24.1 mgd of raw seawater would be needed to produce 9.6 mgd of desalinated product water. The RO process would generate approximately 13.98 mgd of brine (including 0.4 mgd of decanted waste effluent). The salinity of the brine is expected to range between 57 and 58 ppt,[13] which is roughly 71 to 74 percent higher than seawater (Flow Science Inc., 2014). The brine stream would be discharged to Monterey Bay via the existing MRWPCA ocean outfall and diffuser. During wet periods, the brine stream would be blended with treated wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant before discharge. The brine stream could be discharged without dilution for extended periods during dry months when all of the treated wastewater effluent is reclaimed for agricultural irrigation. The amount of treated wastewater effluent available for blending would vary throughout the year.

The MRWPCA's diffuser would disperse the brine stream at the discharge point, thereby minimizing salinity differences between the discharges and the surrounding seawater. Sections 4.3, Surface Water Hydrology and Water Quality, and 4.5, Marine Resources, describe the modeling and analysis performed for brine discharges under the proposed project.

[13] Based on ocean ambient salinity levels ranging from 33.36 to 33.8 ppt (Flow Science, Inc., 2014).

Table 3-6 provides an overview of typical facility operations under the proposed project.

TABLE 3-6
OVERVIEW OF TYPICAL FACILITY OPERATIONS FOR THE PROPOSED PROJECT

	Operations Schedules
Seawater Intake System and MPWSP Desalination Plant	24 hours a day, 365 days per year
Conveyance of Salinas Valley Return Flows to CCSD and CSIP	Dry season (typically May through November)
ASR – Injection of Desalinated Product Water	Wet season (typically November through April)
ASR – Injection of Carmel River Supplies	Wet season (typically December through May)
ASR – Extraction	Typically May through November

SOURCE: RBF Consulting, 2013a.

Over the life of the project, for a host of reasons (e.g., mechanical or electrical problems, water quality issues[14], loss of power, etc.), there would be periods when CalAm would need to shut down the MPWSP Desalination Plant. After a shutdown, CalAm might operate the plant with all RO modules in service (at the plant's maximum production capacity of 11.2 mgd) to catch up on production; however, the total annual production would not exceed 9.6 mgd (Svindland, 2014).

Table 3-7 provides a comparative example of MPWSP Desalination Plant typical daily versus operations following a 2-day shutdown. As shown in the example, any fluctuations in daily production would not affect total monthly production.

The slant wells would require maintenance every 5 years. During maintenance, workers would access the well from the wellhead, and would lower mechanical brushes into the wells to clean the screens. If chemical cleaning products are needed for maintenance, only environmentally inert products would be used. The disturbance area associated with periodic maintenance of the subsurface slant wells would be roughly 6 acres. All disturbance would occur on the back side of the dunes at the concrete pad/wellheads.

Accounting for all of the slant wells, maintenance activities within the beach area would last between 9 and 18 weeks every 5 years. Maintenance activities would occur between October and February to avoid the nesting season for snowy plover. Maintenance workers would access the slant wells via the existing CEMEX access road (RBF Consulting, 2013a).

[14] Hazardous Algal Blooms would not be a reason for the wells to stop operating. Subsurface intakes are not affected by algal blooms.

TABLE 3-7
MPWSP DESALINATION PLANT OPERATIONS –
NORMAL OPERATIONS VS. RECOVERY POST 2-DAY SHUTDOWN

Week	Daily Production (mgd)						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Normal Operations							
1	9.5	9.5	9.5	9.5	9.5	9.5	9.5
2	9.5	9.5	9.5	9.5	9.5	9.5	9.5
3	9.5	9.5	9.5	9.5	9.5	9.5	9.5
4	9.5	9.5	9.5	9.5	9.5	9.5	9.5
						Total Monthly Production =	**266 mgd**
Operations Before and After 2-Day Shutdown							
1	9.5	9.5	9.5	9.5	9.5	9.5	9.5
2	9.5	****2-Day Shutdown****		11.2	11.2	11.2	11.2
3	11.2	11.2	11.2	11.2	11.2	11.2	11.2
4	9.5	9.5	9.5	9.5	9.5	9.5	9.5
						Total Monthly Production =	**266 mgd**

SOURCE: Svindland, 2014.

3.4.2 Operation of the ASR System

Carmel River supplies would be injected into the groundwater basin via ASR under the MPWMD's and CalAm's existing SWRCB Permits 20808A and 20808C. The instantaneous rate and cumulative quantity of water diverted from the Carmel River and placed into underground storage would be measured and recorded, as would the cumulative quantity of Carmel River water recovered from underground storage and placed into beneficial use.

Unlike the injection period for Carmel River supplies, which is limited to periods of high flow between December and May in the lower stretches of the Carmel River, desalinated product water supplies could be injected into the Seaside Groundwater Basin during any time of the year. Desalinated product water and Carmel River supplies would typically be pumped out of the basin during summer months and periods of peak demand.

Similar to existing operations, CalAm proposes to use the ASR system to store water supplies during wet periods. Both desalinated product water and Carmel River supplies would be chlorinated to drinking water standards at existing CalAm treatment facilities prior to injection. Desalinated product water would flow through the new Desalinated Water Pipeline and new Transmission Main to the Terminal Reservoir. Carmel River supplies would be conveyed through the existing Segunda Pipeline to the Terminal Reservoir. From the Terminal Reservoir, the water would be injected into the northern subbasin of the Seaside Groundwater Basin (see Section 4.4, Groundwater Resources, for descriptions of groundwater basins and subbasins in the project area).

CalAm would rely primarily on any of the six ASR injection/extraction wells (Phases I, II, and III of the ASR system) to recover the banked water. Depending on demand, CalAm would also use existing groundwater production wells in the Seaside Groundwater Basin to recover the banked water. This would increase operational flexibility. CalAm would extract the water via existing production wells under the following conditions to avoid changing the hydraulic gradient or exacerbating localized depressions:

- Seaside Groundwater Basin annual monitoring reports prepared by Seaside Groundwater Basin Watermaster would be reviewed yearly to identify the current location of the groundwater depression in the Santa Margarita Formation, the aquifer unit where the ASR system water would be banked.
- CalAm's use of existing groundwater production wells to recover water stored in the ASR system would be limited to those production wells in the northern subbasin located east of the center point of the groundwater depression. Restricting extraction to the eastern side of the groundwater depression would allow CalAm to extract the banked water before it migrates into the depression and would, therefore, avoid affecting the groundwater depression.
- The order in which the groundwater production wells would be used to extract banked water depends on how close they are to the ASR injection wells. The first priority would be any of the ASR wells, followed in order by the Paralta, Ord Grove #2, Luzern #2, and Playa #3 Wells.[15]
- Existing groundwater production wells located outside of the northern subbasin of the Seaside Groundwater Basin (Plumas #4 Well) would not be used to recover banked water because these wells are not directly connected to the aquifer where the ASR water would be stored (CalAm, 2014b).

The stored water would be pumped out of the groundwater basin and conveyed through the ASR Conveyance Pipeline, either to the CalAm distribution system for direct delivery to customers in Seaside, or to the Terminal Reservoir for subsequent conveyance and delivery to customers located elsewhere. CalAm would meet drinking water requirements by disinfecting this water before serving it to customers.

Tanker trucks would deliver sodium hypochlorite solution (12.5 percent NaOCl) to the existing ASR disinfection facility about once each month to replenish the system. With all six wells in operation, the expected chemical use would be less than 150 gallons per day of sodium hypochlorite. The ASR system would be operated remotely via SCADA.

Similar to operations for the existing ASR injection/extraction wells, facility operators would regularly backflush accumulated sediment and turbid water from the ASR-5 and ASR-6 Wells. This would take anywhere from a few minutes to 2 hours. CalAm would route the water produced during routine backflushing to the existing ASR settling basin at the ASR-1 and ASR-2 Wells site, near the intersection of General Jim Moore Boulevard and Coe Avenue.

[15] Based on the current location of the groundwater depression in 2012, and until the depression migrates to the west, the Playa #3 Well may not be used to recover water banked in the ASR system.

3.4.3 Desalinated Water Conveyance Facilities

3.4.3.1 Routine Maintenance of Pump Stations and Pipelines

The proposed pump station could operate continuously for up to 24 hours a day. Although pump stations would typically be operated remotely via SCADA, facility operators would conduct routine visits to the pump station site to monitor operations, conduct general maintenance activities, and service the pumps.

General operations and maintenance activities associated with pipelines would include annual inspections of the cathodic protection system and replacement of sacrificial anodes when necessary, testing and servicing of valves, vegetation maintenance along rights-of-way, and repairs of minor leaks in buried pipeline joints or segments.

3.4.3.2 Interconnections for Highway 68 Satellite Systems

With implementation of the proposed project, the Ryan Ranch, Hidden Hills, and Bishop satellite systems would stop pumping groundwater from the Laguna Seca Subbasin and would rely on MPWSP supplies instead.

3.4.4 Payback to Seaside Groundwater Basin

As part of the adjudication of the Seaside Groundwater Basin, CalAm must provide replenishment water supplies to the basin in an amount equivalent to the quantity of water that CalAm previously pumped in excess of the basin's natural safe yield.[16] In November 2012, the Seaside Groundwater Basin Watermaster and CalAm tentatively agreed to a replenishment schedule of 25 years at a replenishment rate of 700 afy, based on a running 5-year (water year) average. CalAm would meet its obligations via in-lieu recharge or artificial replenishment. Depending on fluctuations in precipitation and water supplies, the actual volume of water replenished during any given year would vary but would be equal to or greater than 700 afy based on a running 5-year average (Watermaster, 2012).

3.4.5 Power Demand

Under existing conditions, the electrical power needed to operate the water supply system in CalAm's Monterey District Service Area is 11,466 million kilowatt hours per year (kWh/yr). That is the baseline electrical demand for the proposed project. With the proposed project, and accounting for the reduction in Carmel River pumping that would occur once the MPWSP Desalination Plant is brought online, the average annual power demand for the Monterey District Service Area would be 63,164 million kWh/yr. Therefore, the net increase in annual electrical

[16] As defined in Monterey County Superior Court's final decision in Case No. 66343, *California American Water v. City of Seaside, et al.* (Monterey County Superior Court, 2006), and as amended decision in February 2007 (Monterey County Superior Court, 2007), "natural safe yield" is the quantity of groundwater in the Seaside Groundwater Basin that occurs solely as a result of natural replenishment.

power demand for water production would be approximately 51,698 million kWh/yr. Electrical power for all of the proposed project facilities would be provided via the PG&E power grid unless CalAm were to secure a separate renewable power source for some or all of its power needs.

The MPWSP would recover energy from the brine stream using pressure-exchanger technology.[17] Energy recovery is a process through which the energy contained in pressurized brine flow is transferred to a portion of the RO source water. This lowers source water pumping requirements and thus lowers overall energy consumption. Under the proposed project, energy recovery using pressure-exchanger technology would substantially reduce overall energy consumption during the RO process. This reduced consumption is reflected in the estimate of annual electrical power demand in the previous paragraph.

3.5 Permits, Approvals, and Regulatory Requirements

This EIR/EIS is intended to inform decision-makers of the environmental consequences associated with the proposed MPWSP. The proposed project would be subject to various regulations and could require discretionary permits from federal, state, and local jurisdictions. **Table 3-8** summarizes the permits and authorizations that would likely be required to build, operate, and maintain the proposed project. Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, explains how the project follows the applicable state, regional, and local plans relevant to each topical section in the chapter.

[17] Additional information on pressure-exchanger energy recovery systems is available at www.energyrecovery.com.

TABLE 3-8
ANTICIPATED PERMITS AND APPROVALS

Agency or Department	Permit or Approval	Discussion
Federal Agencies – ***Consultations with federal agencies could be required if the proposed project is subject to a federal permit, such as a Clean Water Act Section 404 permit.***		
U.S. Army Corps of Engineers (Corps)	Permit under Section 404 of the Clean Water Act (33 USC §1344)	• Projects that would discharge dredged or fill material into waters of the United States, including wetlands, require a Corps permit under Clean Water Act Section 404.
U.S. Fish and Wildlife Service (USFWS)	Biological Opinion under Section 7 of the Federal Endangered Species Act (FESA) (16 USC §1531 et seq.) and Incidental Take Statement Permit in accordance with FESA Section 7, as amended (16 USC §1531 et seq.)	• The Federal Endangered Species Act requires federal agencies to consult with the USFWS before implementing actions that may result in the incidental take of a federally listed species under their jurisdiction. MBNMS, as NEPA Lead Agency, must consult with the USFWS to determine whether the proposed action of issuing permits and authorizations for the proposed project is likely to adversely affect a federally-listed terrestrial or freshwater animal or plant species under USFWS jurisdiction, or that species' designated critical habitat; jeopardize the continued existence of species that are proposed for listing under FESA; or adversely modify proposed critical habitat. To support the USFWS determination, MBNMS will prepare a Biological Assessment to initiate "formal consultation". The USFWS will issue a Biological Opinion concerning the effects of the project. If the USFWS finds that the project may jeopardize the species or destroy or modify critical habitat, reasonable and prudent alternatives to the action must be considered. • The USFWS authorizes the incidental take of federally listed species through an Incidental Take Statement that is supported by, and often attached to, the Biological Opinion, consistent with Section 7 of the FESA.
	Incidental Take Permit under the Migratory Bird Treaty Act (16 USC §§703–711)	• The incidental take of migratory birds or any part, nest, or eggs of a migratory bird also requires an Incidental Take Permit from the USFWS.
State Historic Preservation Officer	Consultation with State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) under Section 106 of the National Historic Preservation Act of 1966 (NHPA) (16 USC §470 et seq.)	• The NHPA requires federal permitting agencies to "take into account" the effects of an action, or a proposed project, on properties included in the National Register of Historic Places or that meet National Register criteria, and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. Thus, as part of the federal consultations required by NEPA, the MBNMS must consult with the SHPO or THPO on behalf of the project applicant.
National Oceanic and Atmospheric Administration (NOAA)	MBNMS superintendent must authorize other agencies' permits within the sanctuary under NOAA's National Marine Sanctuary Program requirements (15 CFR Part 922)	• Authorization by MBNMS superintendent is required for any permit, lease, license, approval, or other authorization issued or granted by a federal, state, or local agency for activities within MBNMS. This authorization states that the superintendent agrees with the terms and conditions deemed necessary to protect MBNMS resources and qualities.
	Incidental Take Permit or Incidental Harassment Authorization under Section 104 of the Marine Mammal Protection Act of 1972 (MMPA) (16 USC §1374) Consultation and Biological Opinion under FESA Section 7 (16 USC §1531 et seq.)	• The MMPA prohibits unauthorized persons from taking marine mammals in U.S. waters, and prohibits unauthorized U.S. citizens from taking marine mammals in in international waters. NOAA Fisheries can authorize incidental take that occurs during non-fishery commercial activities. • The project applicant must consult with NOAA Fisheries to determine whether the proposed project is likely to adversely affect a federally listed marine species or designated critical habitat for such species, jeopardize the continued existence of such species that are proposed for listing under FESA, or adversely modify proposed critical habitat. To make this determination, the project applicant prepares a Biological Assessment which determines

TABLE 3-8 (Continued)
ANTICIPATED PERMITS AND APPROVALS

Agency or Department	Permit or Approval	Discussion
Federal Agencies (cont.)		
National Oceanic and Atmospheric Administration (NOAA) – (cont.)	Incidental Take Statement in accordance with FESA Section 7 (16 USC §1531 et seq.)	whether NOAA Fisheries will conduct a "formal consultation" with the agency and issue a Biological Opinion concerning the effects of the proposed project. If NOAA Fisheries finds that the action may jeopardize, destroy, or modify critical habitat, it will propose reasonable and prudent alternatives to the action. If no jeopardy is found, the action can proceed. • When a federal permit such as a NMSA permit is required, the incidental take of a federally listed species under NOAA Fisheries jurisdiction requires an Incidental Take Statement under Section 7 of FESA. If no federal approval is required, any incidental take of a federally listed species under this agency's jurisdiction would require an Incidental Take Permit in accordance with FESA Section 10(a)(1)(B).
U.S. Army	Land Use (Army Regulation (AR) 405-80, 200-1)	• AR405-80 sets forth the authority and prescribes policies for management of the United States of America title to real property under the jurisdiction or control of the Department of the Army, granting the use of that real property to non-Army users. • Under AR200-1, real property transactions require preparation of appropriate NEPA documentation per 32 Code of Federal Regulations (CFR) 651. Should a discretionary approval be required for use of U.S. Army property, this EIR/EIS will serve as the NEPA requirement for the action.
State Agencies		
California Public Utilities Commission (CPUC)	Certificate of Public Convenience and Necessity (Cal. Pub. Util. Code §1001 et seq.)	• This allows the applicant to build and operate the proposed project, and to recover its costs.
	Consultation with NOAA Fisheries under Section 305(b) of the Sustainable Fisheries Act (16 USC §1855(b))	• If the CPUC approves a project that could adversely affect designated Essential Fish Habitat (EFH), it must consult with NOAA Fisheries. See related discussion provided in the context of the Corps.
Fort Ord Reuse Authority (FORA)	Finding of substantial conformance with the Base Reuse Plan and the FORA Master Resolution Chapter 8 consistency criteria	• Applications for local agency legislative land use planning approval (such as a proposed county general plan amendment) come before the FORA Board of Directors for a determination of consistency between the application and the Base Reuse Plan.
Central Coast Regional Water Quality Control Board (RWQCB)	Compliance with National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Construction Activity (Order 2010-0014-DWQ)	• Any discharge of stormwater to surface waters of the United States from a construction project that encompasses 1 acre or more of soil disturbance requires compliance with the General Permit. This includes: – Development and implementation of a stormwater pollution prevention plan that specifies best management practices (BMPs) to prevent construction pollutants from contacting stormwater, with the intent of keeping all products of erosion from moving offsite into receiving waters – Elimination or reduction of non-stormwater discharges to storm sewer systems and other waters of the U.S. – Inspection of all BMPs

TABLE 3-8 (Continued)
ANTICIPATED PERMITS AND APPROVALS

Agency or Department	Permit or Approval	Discussion
State Agencies (cont.)		
Central Coast Regional Water Quality Control Board (RWQCB) (cont.)	NPDES permit under Section 402 of the Clean Water Act (33 USC §1342)	• Discharges of brine into surface waters of the United States, including wetlands and Monterey Bay National Marine Sanctuary, requires an NPDES permit. The *Waste Discharge Requirements for the Monterey Regional Water Pollution Control Agency Treatment Plant* (Order No. R3-2014-0013, NPDES Permit No. CA0048551) would be revised to include the brine discharges from the MPWSP Desalination Plant.
	Waste Discharge Requirements under the Porter-Cologne Water Quality Control Act (Cal. Water Code §13000 et seq.)	• Any activity that results or may result in a discharge of waste that directly or indirectly impacts the quality of waters of the state (including groundwater or surface water) or the beneficial uses of those waters is subject to waste discharge requirements.
	Water Quality Certification under Section 401 of the Clean Water Act (33 USC §1341)	• Under Section 401 of the Clean Water Act, the RWQCB must certify that actions authorized under Section 404 of the Clean Water Act also meet state water quality standards. Any applicant for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into navigable waters, must provide the licensing or permitting agency a certification that the activity meets state water quality standards.
California Department of Fish and Wildlife (CDFW)	Incidental Take Permit under the California Endangered Species Act (CESA) (Cal. Fish and Game Code §2081)	• The take of any endangered, threatened, or candidate species may be permitted if it is incidental to an otherwise lawful activity and if the impacts of the authorized take are minimized and fully mitigated. No permit may be issued if the activity would jeopardize the continued existence of the species.
	Lake/Streambed Alteration Agreement (Cal. Fish and Game Code §1602)	• It is unlawful to substantially divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources, or to use any material from the streambeds, without first notifying the CDFW.
California Coastal Commission (CCC)	Coastal Development Permit under the California Coastal Act (Cal. Pub. Res. Code §30000 et seq.)	• Development proposed within the Coastal Zone requires a Coastal Development Permit from the CCC, except where the local jurisdiction has approved a Local Coastal Program (LCP). If so, the primary responsibility for issuing permits in coastal areas shifts from the CCC to the local government, although the CCC will hear appeals on certain local government coastal development decisions. • Regardless of whether a Coastal Development Permit must be obtained from a local agency under an approved LCP, the CCC retains coastal development permit authority over new development proposed on the immediate shoreline, including intake and outfall structures on tidelands, submerged lands, and certain public trust lands, and over any development that constitutes a "major public works project." (Cal. Pub. Res. Code §§30601, 30600[b][2]).
	Federal Consistency Review under the Coastal Zone Management Act (16 U.S.C. §1456) and Federal Consistency regulations (15 C.F.R. Part 930, Subpart D)	• In accordance with 15 C.F.R. Part 930, Subpart D, the project applicant may be required to submit a federal consistency certification to the CCC. The CCC must then concur, conditionally concur, or object to the certification; no response from the CCC would be considered a presumed concurrence.

TABLE 3-8 (Continued)
ANTICIPATED PERMITS AND APPROVALS

Agency or Department	Permit or Approval	Discussion
State Agencies (cont.)		
California Department of Public Health (CDPH)	Permit to Operate a Public Water System (Cal. Health and Safety Code §116525)	• The CDPH has permitting authority over the operation of a public water system and oversees the quality of the desalinated water produced.
California Department of Transportation (Caltrans)	Encroachment Permit (Cal. Streets and Highway Code §660 et seq.)	• Caltrans has permitting authority over encroachments in, under, or over any portion of a state highway right-of-way, including Highway 156, Highway 68, and Highway 1.
California Department of Toxic Substances Control (DTSC)	DTSC hazardous waste management and disposal requirements under Title 22, Division 4.5, Chapter 11, Article 3, Soluble Threshold Limits Concentrations (STLC)/Total Threshold Limits Concentrations (TTLC); Review under local regulations for digging and excavation within certain areas of the former Ft Ord.	• DTSC would require soil management plans if contaminated soils are present along the pipeline alignment. Regulatory Requirements outline the concentrations at which soil and groundwater are a California Hazardous Waste. Title 22 would apply if contaminated soil or groundwater arising from trenching are a Hazardous Waste, subject to associated transport and disposal requirements. Under 40 CFR Part 261, concentrations of contaminated soil or groundwater may also be a Federal Hazardous Waste. • DTSC must approve digging and excavation in certain portions of the former Fort Ord military base (also see City of Seaside Digging and Excavation Permit).
California State Lands Commission (CSLC)	New Land Use Lease, for portion of the subsurface slant wells located below mean high tide, and Amended Land Use Lease, for use of the MRWPCA outfall and diffuser (Cal. Pub. Res. Code § 1900)	• CSLC has jurisdiction and management authority over all ungranted tidelands and submerged lands in Monterey Bay under the Common Law Public Trust. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide elevation.
Local Agencies		
Seaside Groundwater Basin Watermaster	Permit for Injection/Extraction	• The Seaside Groundwater Basin Watermaster must approve injection/extraction activities that would affect the Seaside Groundwater Basin.
City of Seaside	Digging and Excavation Permit	• Excavations of more than 10 cubic yards within an Ordnance Remediation District, in the Former Fort Ord areas require a permit under Chapter 15.34, Digging and Excavation, of the Former Fort Ord Ordinance. Permit approval is subject to requirements placed on the property by an agreement between the City of Seaside, FORA, and DTSC.
City of Marina	Coastal Development Permit in accordance with the California Coastal Act (Cal. Pub. Res. Code §30000 et seq.)	• Where the City of Marina has jurisdiction through a Local Coastal Program, it must permit development proposed in the Coastal Zone, and the CCC retains jurisdiction over appeals. Where there is no Local Coastal Program, the CCC retains primary permit authority.
Monterey County Public Works Department	Encroachment Permit (Monterey County Code [MCC] Chapter 14.04)	• Designated activities within the right-of-way of a county highway require an Encroachment Permit from the director of the Public Works Department, whose decisions may be appealed to the Monterey County Board of Supervisors.
	Tree Removal Permit	• Removal of any protected trees requires a tree removal permit under Chapter 16.60 of the County's municipal code. Removal of more than three protected trees requires a forest management plan from the Director of Planning.

TABLE 3-8 (Continued)
ANTICIPATED PERMITS AND APPROVALS

Agency or Department	Permit or Approval	Discussion
Local Agencies (cont.)		
Monterey County Health Department, Environmental Health Division	Well Construction Permit (MCC Chapter 15.08)	• Monterey County's health officer must issue a written permit before anyone can build new water supply wells. Those decisions may be appealed to the Board of Supervisors.
	Permit to Construct Desalination Facility (MCC Chapter 10.72)	• Monterey County's director of environmental health, or their designee, must issue a permit before anyone can build or operate a desalination treatment facility (MCC Section 10.72.010). Permit decisions may be appealed to the director of environmental health within 30 days (MCC Section 10.72.080).
Monterey County Planning and Building Inspection Department	Conditional Use Permit (MCC Chapter 21.74)	• The Monterey County Zoning Ordinance requires a conditional use permit issued by the appropriate planning authority (e.g., the zoning administrator or the Planning Commission) for certain uses in specific zones. The permit decisions may be respectively appealed to the Planning Commission or the Board of Supervisors.
	Coastal Development Permit in accordance with the California Coastal Act (Cal. Pub. Res. Code §30000 et seq.)	• Where the County has jurisdiction through a Local Coastal Program, it must permit development proposed in the Coastal Zone, and the CCC retains jurisdiction over appeals. Where there is no Local Coastal Program, the CCC retains primary permit authority.
	Grading Permit (MCC Chapter 16.08)	• Subject to certain exceptions, grading requires a permit from the Monterey County Planning and Building Inspection Department. Grading permit decisions may be appealed to the five-member Board of Appeals, and then to the Board of Supervisors.
	Digging and Excavation Permit (MCC Chapter 16.10)	• A separate permit from the Monterey County Planning and Building Inspection Department is required for any project activities within the former Fort Ord military base. Permit decisions may be appealed to the Board of Appeals and then to the Board of Supervisors.
	Erosion Control Permit (MCC Chapter 16.12)	• The Director of Building Inspection must issue an Erosion Control Permit for any project development and construction activities (such as site cleaning, grading, and soil removal or placement) that are causing or are likely to cause accelerated erosion. Permit decisions may be appealed to the Board of Appeals and then to the Board of Supervisors.
Monterey Peninsula Water Management District (MPWMD)	Water System Expansion permit under with Ordinance 96 of the MPWMD Board of Directors	• Any project activity that would expand the water delivery system within the MPWMD's jurisdiction requires a permit.
Monterey Bay Unified Air Pollution Control District	Authority to Construct permit under Local Rule 3.1	• Projects that propose to build, erect, alter, or replace any article, machine, equipment, or other contrivance that may emit air contaminants from a stationary source or may be used to eliminate, reduce, or control air contaminant emissions require an authorization to construct permit.
	Permit to Operate under Local Rule 3.2	• Operating the diesel fuel-powered emergency generators, and any other articles, machines, equipment, or other contrivances that may emit air contaminants from a stationary source requires a permit to operate.

TABLE 3-8 (Continued)
ANTICIPATED PERMITS AND APPROVALS

Agency or Department	Permit or Approval	Discussion
Local Agencies (cont.)		
City of Monterey, City of Seaside, City of Marina, City of Pacific Grove	Land Use (including local coastal development permit(s), as necessary), Building, Public Health, Public Works, Tree/Vegetation Removal, and Encroachment Permits, and/or similar department approvals to those discussed above in the context of Monterey County, each issued in accordance with the applicable city's municipal code	• See related discussions provided in the context of Monterey County.
Transportation Agency for Monterey County (TAMC)	Encroachment Permit	• An encroachment permit is necessary to install conveyance pipelines along the TAMC right-of-way.

NOTES:

CFR = Code of Federal Regulations
PRC = Public Resources Code
USC = United States Code
MCC = Monterey County Code

References – Description of the Proposed Project

California American Water Company (CalAm), 2013a. Project A-2, System Interconnections. January 2013.

California American Water Company (CalAm), 2013b. San Clemente Dam Removal & Carmel River Reroute Project Website. Available online at: www.sanclementedamremoval.org. Accessed November 1, 2013.

California American Water Company (CalAm), 2014a. Responses to March 31, 2014 Request for Information.

California American Water Company (CalAm), 2014b. Letter from Eric Sabolsice and Rich Svindland, CalAm, to Eric Zigas, Environmental Science Associates. "Operations Rules for the Injection and Extraction of Desalinated Water into ASR Well System." Dated May 2, 2014.

California American Water Company (CalAm), 2014c. Proposed Water Portfolio Data plus energy spreadsheet provided to CPUC by John T. Kilpatrick on March 12, 2014.

CDM Smith, 2014. Technical Proposal for Design-Build of the Monterey Peninsula Water Supply Project Desalination Infrastructure, Section 3.0 Technical Proposal. October 16, 2013.

Central Coast Water Shed Studies (CCoWS), 2009. *Fall 2008 Stage-Volume Relationship for Los Padres Reservoir, Carmel River, California.* Publication No. WI-2009-2. May 8, 2009.

Denise Duffy & Associates, Inc. 2012. *Addendum to the Phase I ASR Environmental Impact Report/Environmental Assessment and Initial Study Checklist for Full Implementation of Aquifer Storage and Recovery (ASR) Water Project 2*. Prepared for Monterey Peninsula Water Management District. April 11, 2012.

California Department of Water Resources (DWR), 2012. *Final Supplement to the Environmental Impact Report for the San Clemente Dam Seismic Safety Project,* July 2012.

Flow Science, Inc. 2014. *MRWPCA Brine Discharge Diffuser Analysis FSI 134032 Draft Technical Memorandum*. August 29, 2014.

Monterey County Superior Court, 2006. California American Water, Plaintiff, vs. City of Seaside, City of Monterey, et al., Case No. M66343, Decision. Filed March 27, 2006.

Monterey County Superior Court, 2007. California American Water, Plaintiff, vs. City of Seaside, et al., Case No. M66343, Amended Decision, February 9, 2007.

Monterey Peninsula Water Management District (MPWMD), 2005. Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Plan and Integrated Coastal Watershed Management Plan, Seaside Groundwater Basin Aquifer Storage and Recovery (ASR) Phase I, July 5, 2005.

RBF Consulting, 2010. *Final Environmental Assessment and Findings of No Significant Impact, Monterey Bay Regional Water Project – Aquifer Storage and Recovery*. Prepared for U.S. Army Garrison, Presidio of Monterey, and California American Water. September 2010.

RBF Consulting, 2013a. *Memorandum: Recommended Capacity for the Monterey Peninsula Water Supply Project (MPWSP) Desalination Plant.* January 7, 2013.

RBF Consulting, 2013b. *Monterey Peninsula Water Supply Project (MPWSP) Project Description Update.* January 9, 2013.

RBF Consulting, 2013c. *Monterey Peninsula Water Supply Project (MPWSP) Capital and O&M Cost Estimate Update.* January 9, 2013.

RBF Consulting, 2013d. *MPWSP Temporary Slant Test Well Project Description,* June 25, 2013.

Regional Water Quality Control Board (RWQCB), Central Coast Region, 2008. General Waiver for Specific Types of Discharges (Resolution No. R3-2008-0010). May 9, 2008.

Regional Water Quality Control Board (RWQCB), Central Coast Region, 2011. Waste Discharge Requirements National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges with Low Threat to Water Quality. Order No. R3-2011-0223, NPDES Permit No. CAG993001. December 1, 2011.

Regional Water Quality Control Board (RWQCB), Central Coast Region, 2014. Waste Discharge Requirements for the Monterey Regional Water Pollution Control Agency Treatment Plant (Order No. R3-2014-0013, NPDES Permit No. CA0048551)

Seaside Groundwater Basin Watermaster, 2012. Meeting Minutes from November 29, 2012 Board Meeting.

State Water Resources Control Board (SWRCB), 1995. Order No. WR 95-10: Order on Four Complaints Files Against The California-American Water Company, Carmel River, Monterey County. July 6, 1995.

Svindland, Richard, 2014. Email from Richard Svindland, Vice President of Engineering at California American Water Company, to Kelly White, Senior Project Manager at Environmental Science Associates. "Desal Plant Planned Feedwater Supply Requirements." Dated May 30, 2014.

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